ENGINEERING NEWS-RECORD

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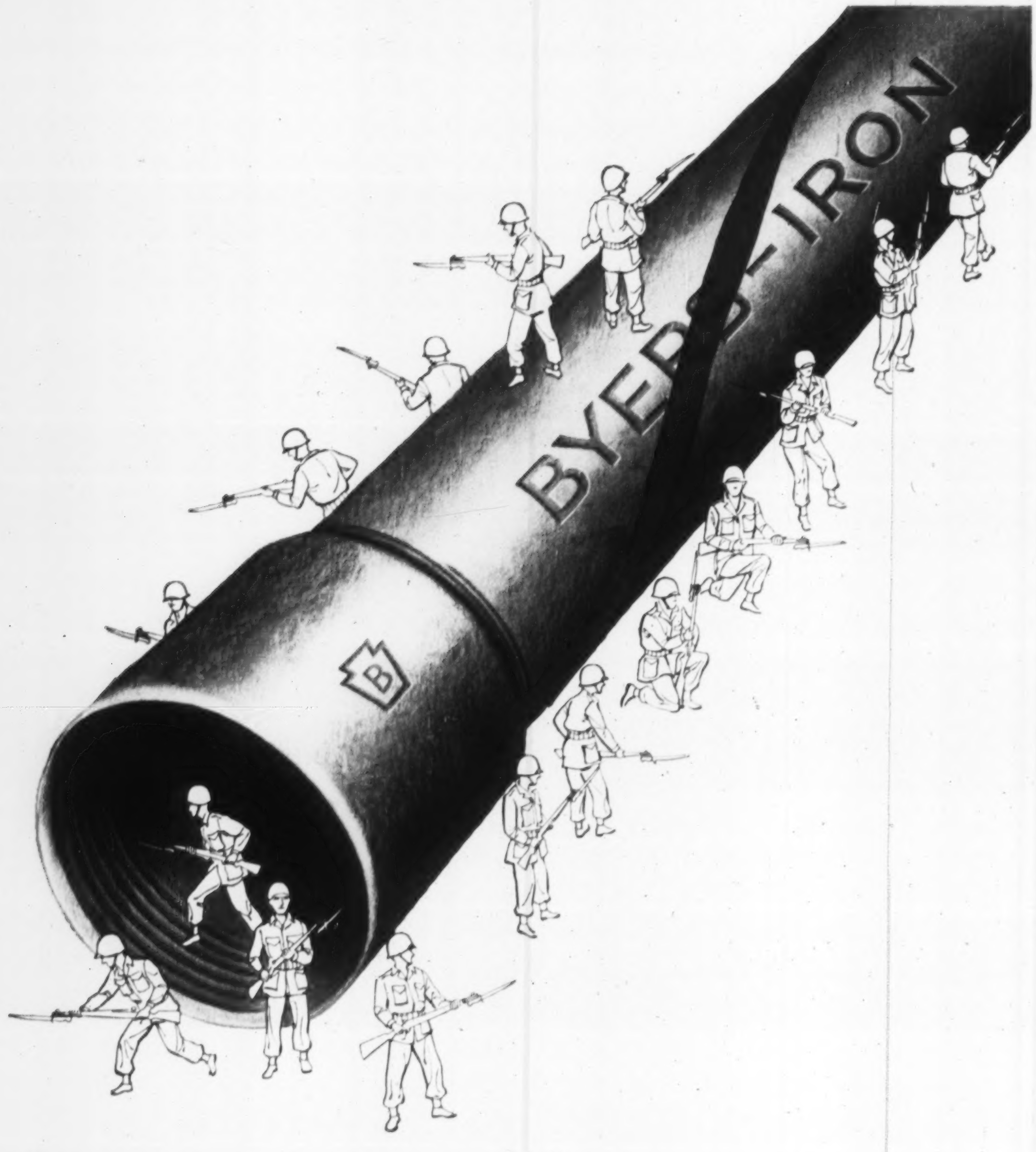
Steel truss arches span 360 feet *p. 36*

A McGRAW-HILL PUBLICATION



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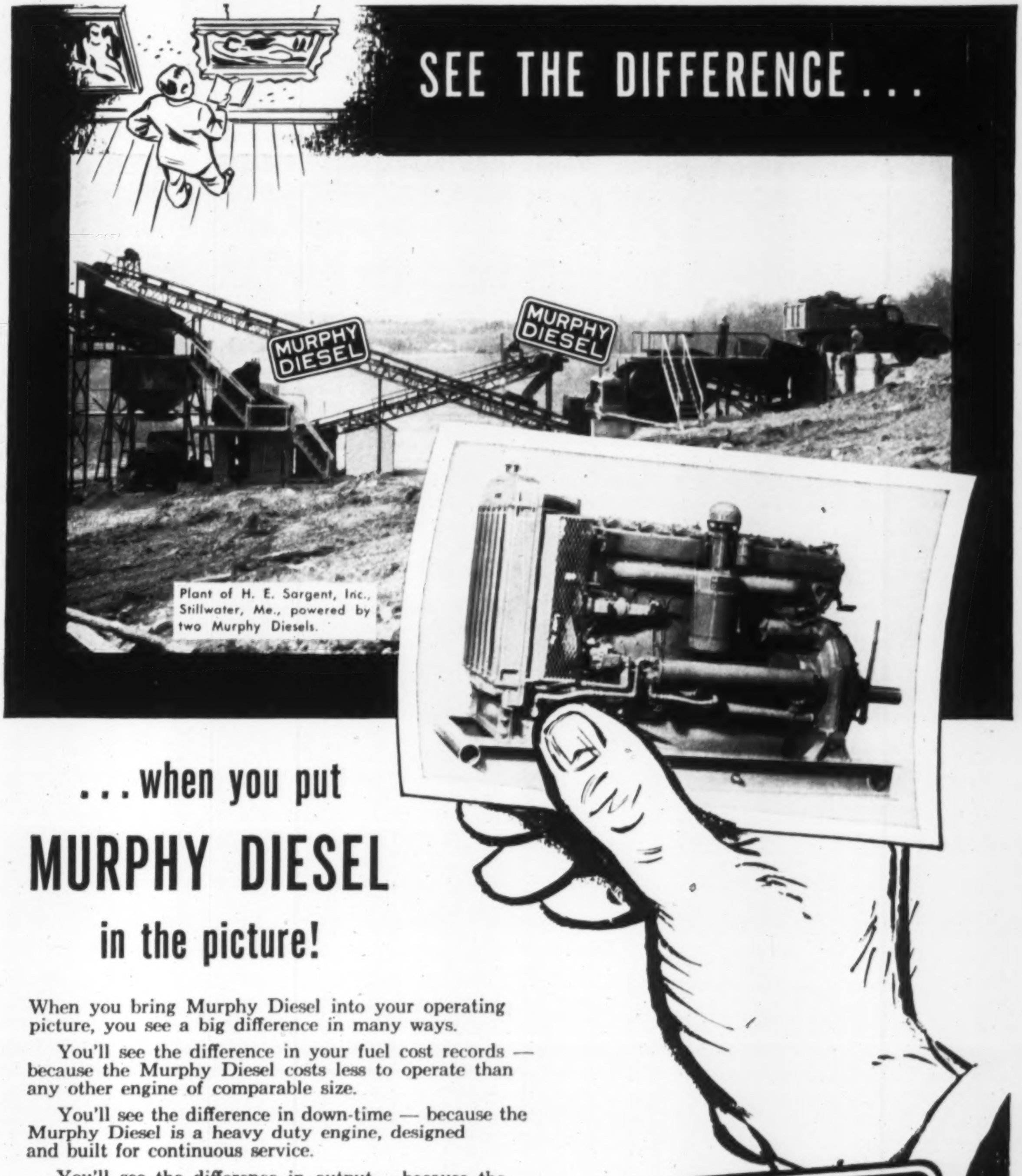

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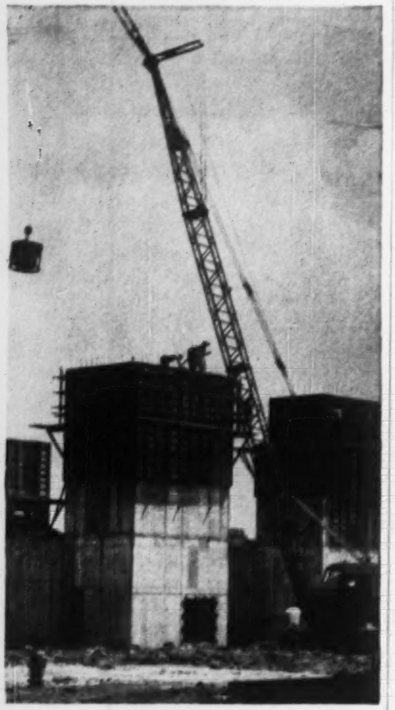
Symons FIELD REPORT...



SYMONS FORMS USED ON TWA TEST CELLS ...

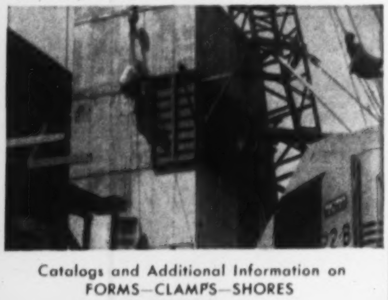
Five aircraft engine test cells, with exhaust and intake stacks 45 feet high, are being erected at Trans World Airlines' overhaul base at Mid-Continent International Airport, Kansas City, Mo.—the first cells of their kind in the United States.

These cells are on a concrete base, and 12,500 square feet of Symons Forms with Steel Cross Members were used for the 55,000 square feet of concrete forming required. Sharp Brothers Contracting Company, Kansas City was the general contractor.

TWA test cells are just one of many commercial, industrial, institutional and public works construction jobs for which Symons Forms are adaptable. Symons engineering staff gives complete service on the details of all forming jobs. Our salesmen are field-trained to give practical advice on form erection, pouring and stripping methods.

Symons Forms, Shores and Column Clamps may be rented with purchase option, all rentals to apply on purchase price. Symons Clamp & Mfg. Co., 4265 Diversey Ave., Dept. H6, Chicago 39, Ill.

In this unusual stripping procedure, panels are being removed by a worker seated in a bosun's chair suspended from a crane boom.



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EIGHTY-SECOND YEAR OF PUBLICATION

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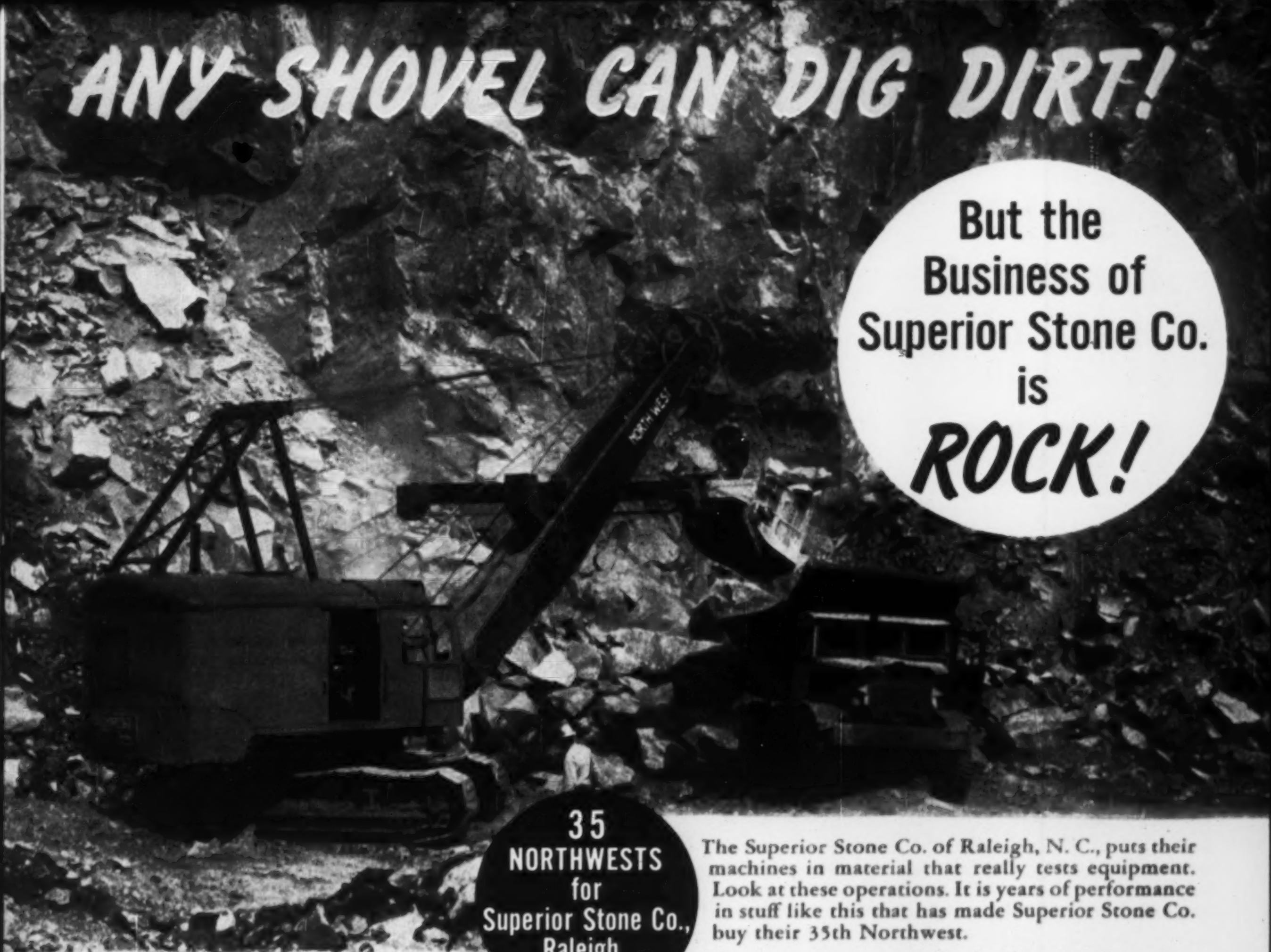
ANY SHOVEL CAN DIG DIRT!



But the Business of Superior Stone Co. is *ROCK!*

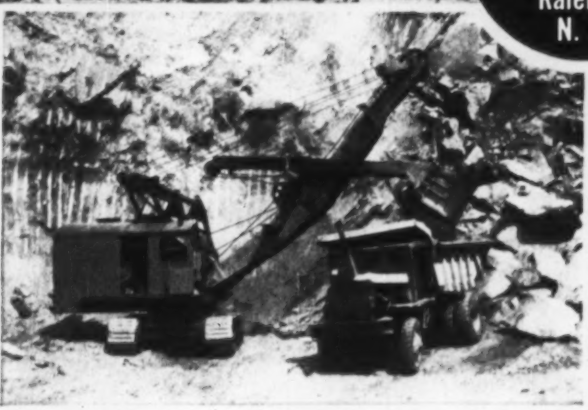
35 NORTHWESTS for Superior Stone Co., Raleigh, N. C.

The Superior Stone Co. of Raleigh, N. C., puts their machines in material that really tests equipment. Look at these operations. It is years of performance in stuff like this that has made Superior Stone Co. buy their 35th Northwest.

Northwests are *real* Rock Shovels! Get on a Northwest if you know operation. Get the feel of the controls. Feel that crowd take a-hold. The dipper goes right on through as the hoist takes it up — no "re-starts" here. It's a full load in one cut. Remember, the Northwest Dual Independent Crowd utilizes force most other independent crowd shovels waste — force that puts greater effectiveness at the dipper lip for handling tougher digging and producing more output.

To Northwest digging power add the "Feather-Touch" Clutch Control which brings ease of operation without the complications of pumps, piping and compressors; the Cushion Clutch that eliminates shock overloads before the damage is done; Uniform Pressure Swing Clutches that cut spotting time by eliminating the jerks and grabs in swinging; Northwest simplicity of design that makes upkeep easy and reduces "down time"; and all other Northwest advantages that make Northwest a *real* Rock Shovel.

You can plan to have a Northwest. Now is the time to find out about Northwest design and operation. Why not talk it over with a Northwest man?



One of Superior's old Northwest 80-D's at Red Hill, Va. This machine is almost 9 years old and has handled almost 6 million yards of Rock.

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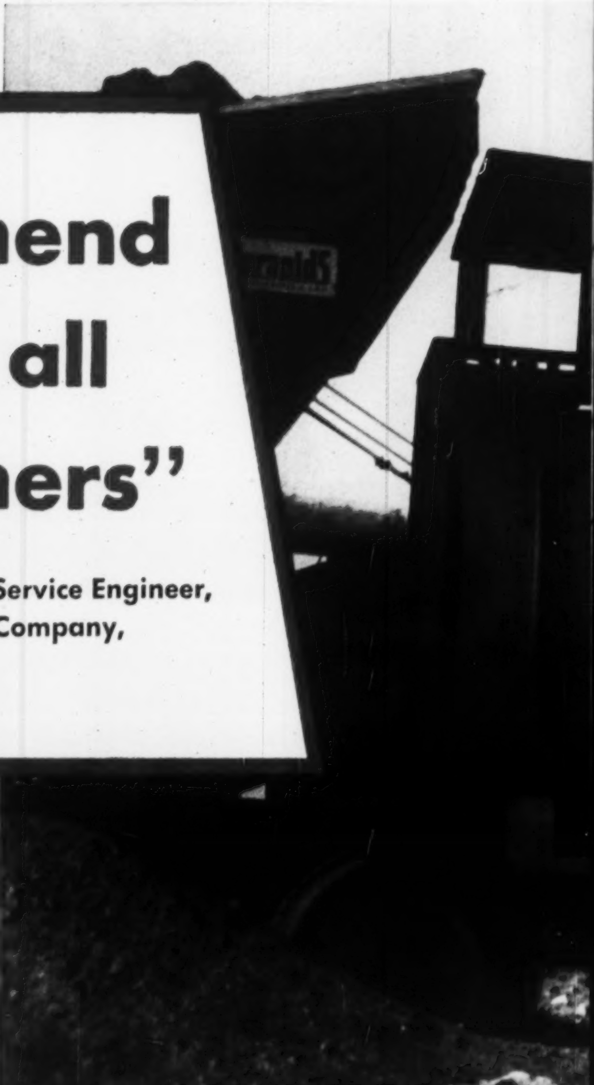

"We have been using Texaco for more than twenty years," says Mr. Titsworth. "Instruction plates on all 'Cedarapids' crushers, screens, driers, hammermills and other heavy duty equipment recommend Texaco exclusively.

"*Texaco Marfak*, for example, has always done an outstandingly fine job. Our long experience shows it to be the best lubricant for the heavy duty service, shock loads and high temperatures our equipment often meets on the job. That's why every piece of 'Cedarapids' equipment is *Marfak*-lubricated when it leaves our plant."

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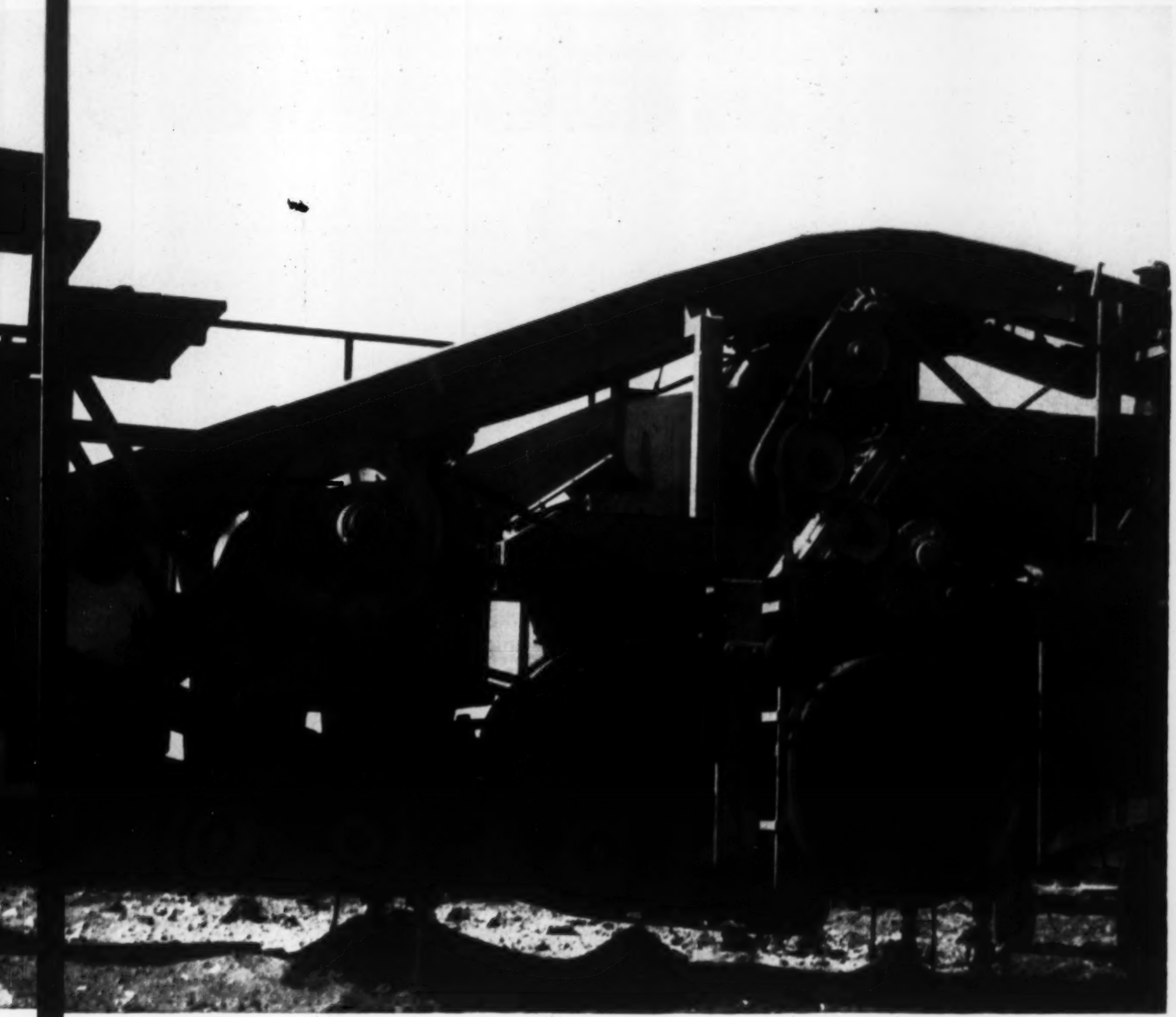

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Rear-Dumps with payload capacities of 10 to 50 tons

Utilizing the Twin-Power principle pioneered by Euclid, the 34-ton and 50-ton "Eucs" are designed for jobs where large tonnage must be moved. Two engines provide a total of 400, 436 and 600 h.p. . . . each engine drives one of the drive axles through a separate Torqmatic Drive . . . hydraulic power steering and exhaust heated bodies of 24 and 32 yd. struck capacity.

A complete line of off-the-highway equipment that gets more work done at lower cost

For over 25 years Euclids have delivered "plus" performance on hundreds of the toughest jobs. Simple, rugged construction, combined with advanced engineering that provides easy operation and maintenance, results in dependable work-ability. Wherever you see "Eucs" at work—on small jobs where one or two units maintain production or on big yardage projects requiring large fleets of equipment—you can be sure they are doing the job at lowest cost. Before you decide on any equipment for your present or future work, check the complete Euclid line. Your Euclid dealer will give you facts and figures on the models that meet your requirements and show you why *Euclids are your best investment.*

Loader and Bottom-Dumps—a high production team!

Bottom-Dump Euclids have struck capacities of 13, 17 and 25 cu. yds. and engines of 218 and 300 h.p. They provide fast non-stop dumping on fills, into drive-over hoppers or spreading in windrows through wide, full length hopper doors. . . top speeds loaded up to 30 mph. The low, wide hopper is easy to load by shovel, dragline, mobile loader and overhead hopper.

The "Euc" Loader, teamed with large capacity high speed Bottom-Dumps, can move up to 1200 bank yards per hour . . . makes shallow cuts up to 9' 6" wide, narrow cuts to 48" deep. Belt width is 54" . . . powered by 245 h.p. engine . . . all loader operations are hydraulically controlled by puller tractor operator.

EUCLID DIVISION, GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

are your best investment

Overhung engine type Scrapers of 7, 12 and 18 yds. struck capacity

Powered by engines of 143, 218 and 300 h.p., these scrapers are the fastest selling line in the industry. Advanced design of Euclid's hydraulic lever action, bowl and cutting blade provides fast, easy loading. The 18 yd. model has Torqmatic Drive . . . all have NoSpin differential and Euclid planetary drive axle . . . unequalled accessibility of power train and major components.

Four-wheel Tractor Scrapers

These 12 and 15.5 yd. scrapers have maximum stability for high speed hauls and rough roads. At 3:1 slope heaped capacity is 14 and 18 yds. A 200 or 218 h.p. engine with 5-speed transmission powers the 12 yd. scraper . . . drive tires are 21.00 x 25 standard with 24.00 x 25 optional. The 15.5 yd. scraper has 300 h.p. engine with 10-speed transmission or Torqmatic Drive . . . standard tires are 24.00 x 25 with 29.5 x 25 optional . . . a 17 yd. bottom-dump trailer is interchangeable with this scraper.

TC-12 Twin Crawler

A completely new concept in tractor design and performance, this Euclid tractor has two 194 h.p. engines (388 h.p. total) with a separate Torqmatic Drive for each track. Changing from one speed range to another (top speed of 8.3 mph) or to one of the three reverse speeds can be done under full power. Available drawbar pull is equal to or greater than gross weight. Planetary drives can be serviced without removing track, frame or drive sprocket.

Twin-Power "Euc" Scraper

The Model TS-18 is powered by two engines with a total of 436 or 518 h.p. It is a one-man earthmoving crew. . . self-loads and works under conditions that stop other scrapers. Tractor has a 218 h.p. or 300 h.p. engine with Torqmatic Drive . . . scraper wheels are driven through Torqmatic Drive by a 218 h.p. engine. Tires are 27.00 x 33 with 33.5 x 33 optional. Heaped capacity at 3:1 is 21 yds.

Rear-Dumps, Bottom-Dumps, Scrapers, Loaders, Tractors

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

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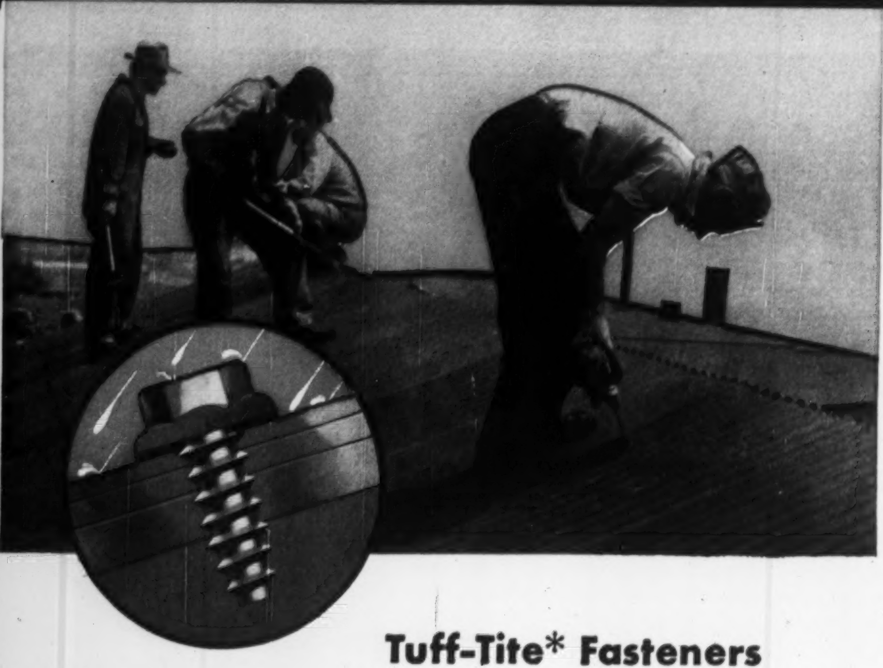
MORE POWER FOR YOU



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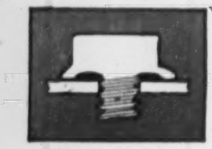

Neoprene washer trapped under head seals hole — acts as cushion.

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Reader Comment

Salaries Belie Shortage

SIR—The editorial prepared by the McGraw-Hill Department of Economics on the shortage of scientists and engineers (ENR July 19, 1956, p. 92) was very interesting to me.

A great need for scientific and engineering talent is presented as existing. This need seems to me to be greatly overestimated. Our economic society measures value with money. If a great need existed it would seem reasonable to me that society would express that need by setting a high value on scientific talent.

Society very clearly expresses its need for medical and legal service, property ownership and manipulation, and management. The article quotes authorities in support of the shortage which it says is a "Threat to Economic Progress."

Economics pays its own way and expresses need in dollars. An examination of engineer's salaries indicates a mild shortage, but nothing that I would call a "crisis."

FRANCIS G. YATES
Colorado Springs, Colo.

Another Source for Closures

SIR—I have noted with considerable interest several of the articles in your July 5th issue, which I feel is an outstanding issue of your magazine.

We want to call your attention to one oversight in your article, "35 Ways to Cut Building Costs" (p. 46). In this article, Item No. 33, (p. 58) refers to the use of siding fillers. We feel that it was an oversight not to mention also, our company in this connection, since we have for a good many years manufactured corrugated closure strips for various shapes of metal and asbestos-cement used in factory construction.

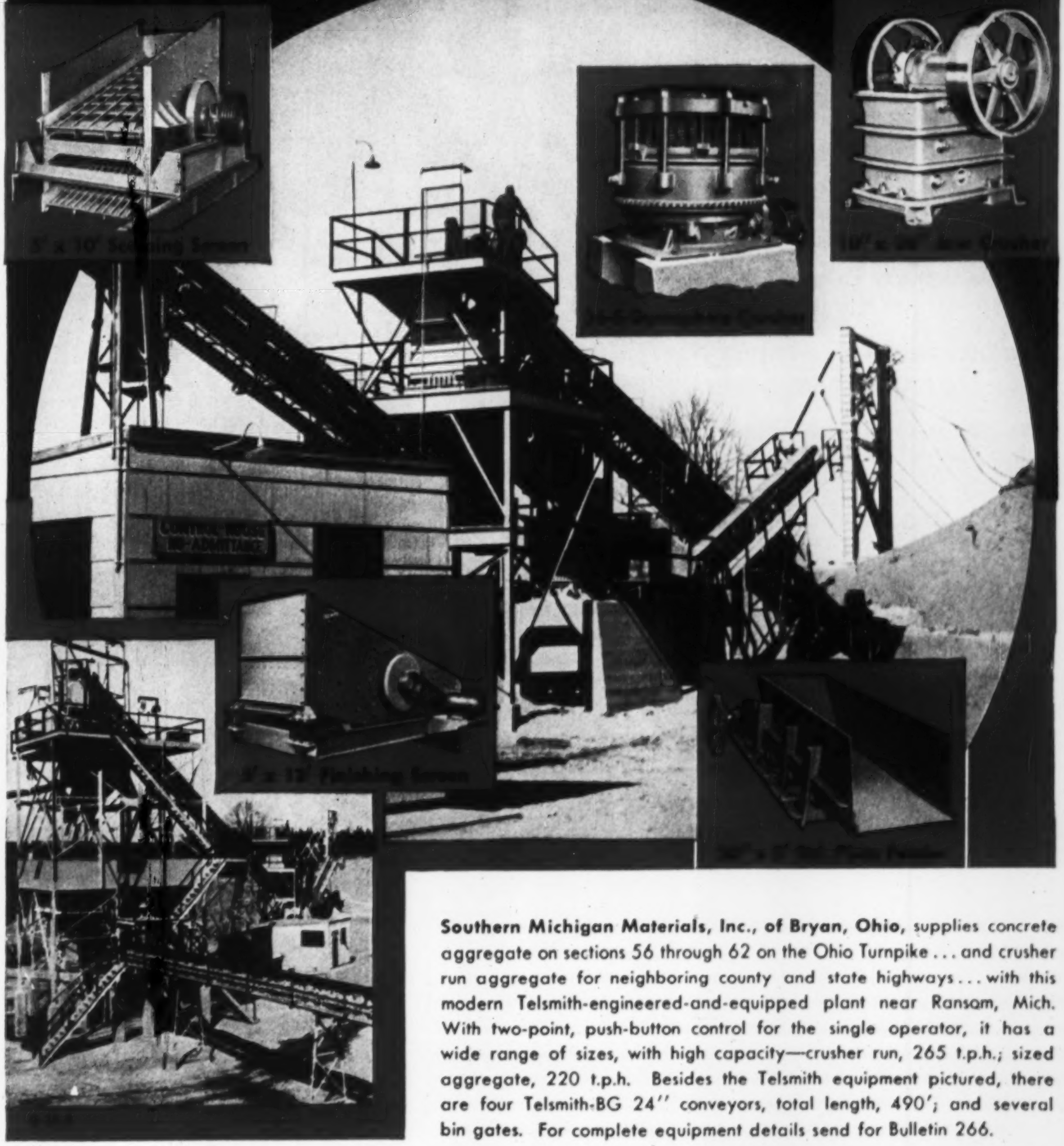
WALLACE C. FISCHER
President
Servicised Products Corp.
Chicago, Ill.

(*Reader Comment continued on p. 12*)

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

220 T.P.H. for OHIO TURNPIKE from this one man controlled TELSMITH PLANT



Southern Michigan Materials, Inc., of Bryan, Ohio, supplies concrete aggregate on sections 56 through 62 on the Ohio Turnpike . . . and crusher run aggregate for neighboring county and state highways . . . with this modern Telsmith-engineered-and-equipped plant near Ransom, Mich. With two-point, push-button control for the single operator, it has a wide range of sizes, with high capacity—crusher run, 265 t.p.h.; sized aggregate, 220 t.p.h. Besides the Telsmith equipment pictured, there are four Telsmith-BG 24'' conveyors, total length, 490'; and several bin gates. For complete equipment details send for Bulletin 266.

SMITH ENGINEERING WORKS

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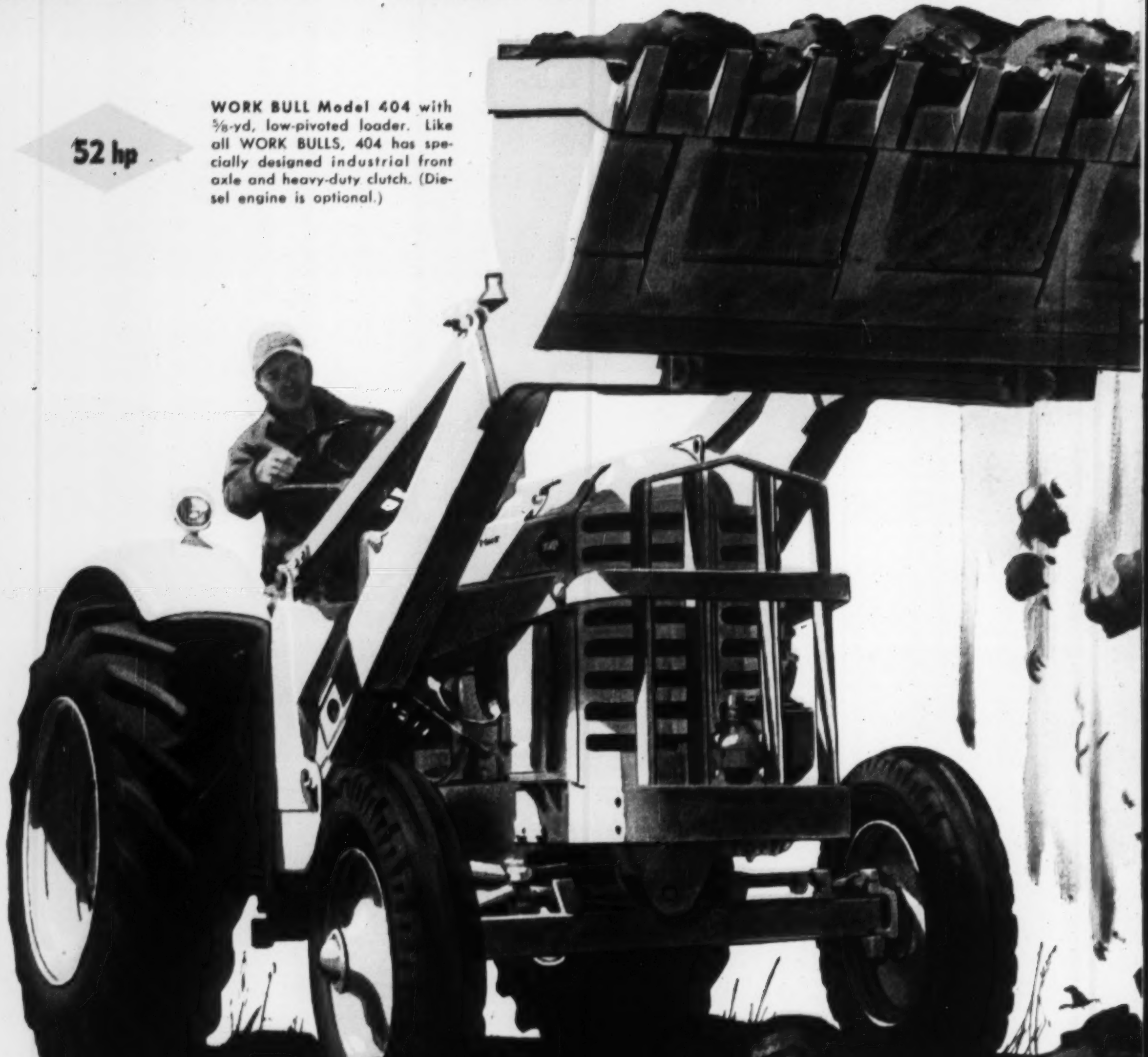
GREAT NEW IDEA in

52 hp

WORK BULL Model 404 with ⅝-yd, low-pivoted loader. Like all WORK BULLS, 404 has specially designed industrial front axle and heavy-duty clutch. (Diesel engine is optional.)



42 hp

WORK BULL Model 303 with angle dozer and backhoe. Gasoline engine, standard, offers high torque at low speed for better lugging. (Diesel optional.)

34 hp

WORK BULL Model 202 with hydraulic-controlled hoe. Most of the WORK BULL attachments can be switched in 5 to 15 minutes in the field — without special gear.

42 hp

Davis PET BULL with ⅞ yd loader features torque converter, reversing clutches and 5 speeds forward, 5 reverse. In many cases it outworks high-priced, single-purpose rigs.

tractors and attachments—

M-H-F

WORK BULLS

NOW — from one source — a package of 5 versatile, low-cost tractors with 20 power-matched, easily-interchangeable attachments!

Contractors! Industries! Utilities! Profit from this new idea in greater machine utility and efficiency. Get the benefits of low cost attachment interchangeability . . . the high-profit performance of tools matched to power and speed . . . the adaptability of job-matched equipment to replace or supplement high-priced, single-purpose units.

What's more, you enjoy the advantages of a single sales and service source — a complete package — available only in the low-cost WORK BULL line.

New, and built to excel where other wheel tractors fail, WORK BULLS pay off in a wide variety of applications . . .

As primary equipment, WORK BULLS put former hand work on a power basis . . . efficiently handle scattered, work-and-run assignments.

As backup machines, WORK BULLS team with medium-priced, single-purpose equipment . . . give you the power equipment ratio that exactly fits the job.

As utility or cleanup tools, WORK BULLS are perfect for hustling around big layouts and relieving big equipment of unprofitable odd-job duties.

Get the complete WORK BULL story now. Write for 24-page illustrated catalog.

IMPORTANT NOTE TO RETAIL DISTRIBUTORS — WORK BULL franchises are still available in a few key areas. Write or wire for details.

Look at this wide choice of integrated WORK BULL attachments!

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- MOWERS—Reel, rotary or side-mounted
- FORK LIFTS — 2000 and 4000 lb. capacities
- BLADES—Bull dozer, angle dozer or grader
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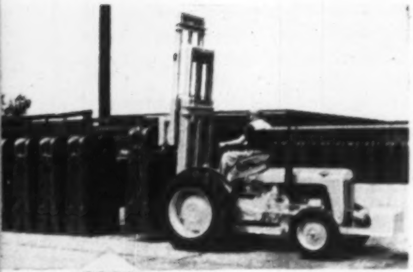

FORK LIFT

Fork Lift Model 202 has lifting capacity of 1500 lbs at full height, 4000 lbs at half height. Optional mast gives lift heights to 21 ft. Works on or off hard surface.

M·H·F WORK BULLS

Division of Massey-Harris-Ferguson, Inc.

15-H Quality Avenue Racine, Wisconsin

PROTECTED BY
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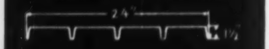
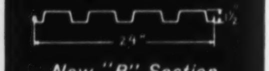
QUALITY
CORROSION RESISTANT

NOW . . . three different types of Milcor Steel Roof Decks



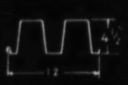
New "A" Section

The standard of the industry for closed-rib decks now redesigned to full 24" width.



New "B" Section

Wide rib distributes metal for greater structural efficiency — gives higher section properties per pound of steel.



New "C" Section

Carries normal roof loads over spans up to 20 feet! Offers freedom of design.

Never before— a roof deck finish like this!

NOW—Bonderized base with baked enamel on Milcor Steel Roof Deck—a roof deck prime coat that can really take construction abuse.

Here is important news to everyone in the building industry. It is the full and complete answer to problems which have long been evident to architects and builders — problems arising from the punishment taken by roof deck in shipping, handling, hoisting and use as a platform by tradesmen.

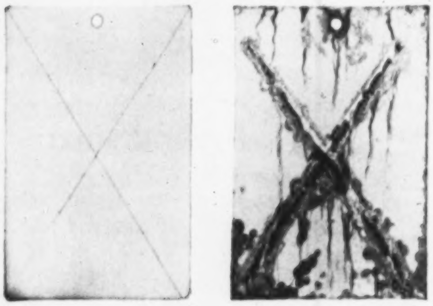
Milcor Steel Roof Deck is the only one in the field with this new, exclusive, far superior primer.

Bonderizing and baked enamel combine to produce the new glossy grey finish. The Bonderizing treatment defies corrosion, anchors paint to the metal, protects it against scuffs and scratches. The abrasion-resistant enamel is *baked on* over the Bonderized steel. The result is the finest, most durable finish ever applied to steel roof deck — and there is no increase in price!

Milcor Steel Roof Deck with the new primer is described in detail in literature just off the press. Send for your copy.

MILCOR® Steel Roof Deck

The steel panel at left was treated with Bonderite; the one at the right was not. Both panels were given a coat of Inland Epoxy Resin primer. After an "X" was intentionally scratched on them, the panels were subjected to the A.S.T.M. standard salt spray test for the same length of time. Note that in the finish over Bonderite, rust stopped at the scratch mark while it spread extensively over the plain steel panel.



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New NSPE Groups

SIR—The fine editorial in your July 19th issue commenting on the NSPE Functional Groups program indicates a clear understanding of this program and its objectives.

We believe that we have a program which will aid materially in a better understanding between different branches of engineers in their many professional problems. I am glad that you agree that we have approached the subject in the proper manner when we decided that not only principals but their employees could become members of these sections. We are of the opinion that if both of these groups can sit down around the table and talk over their common problems a much better understanding can be had, and we will be able to reap many more benefits than otherwise.

Very truly yours,
R. J. RHINEHART
National Society of Professional Engineers
Pine Bluff, Ark.

Functional Groups Questioned

SIR—As President of the newly organized Consulting Engineers Council I read with interest the editorial on NSPE Functional Groups in your July 19th issue.

The matter of adequate representation of the independent self-employed consulting engineer by NSPE Functional Groups has long been under review and was dealt with at length in the Second Report of the Interim Steering Committee which drafted the constitution and by-laws for the Consulting Engineers Council.

From considerable sampling nationwide, it appears that there is an overwhelming majority opinion amongst consulting engineers—most of whom, incidentally, are already members of their state societies and also of NSPE—that the Functional Groups cannot adequately represent nor achieve for them what their own organization, i.e. the Council, will be able to do.

I think it should be recognized that the independent consulting engineer has his own peculiar problems, and that he needs, therefore, his own organization. NSPE has a great variety of engineer membership and, in fact, independent consultants are a very small minority of this. By far, the largest majority of its membership's interests are not concerned with, and are even frequently opposed to, the interests of the independent consultant. Naturally, the consultants' Functional Group may suggest a course of action

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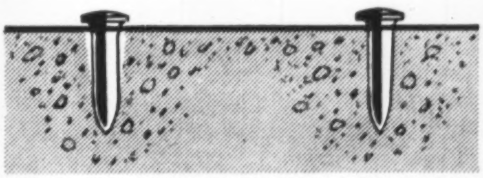

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2. TEMPORARY UNDERPINNING SUPPORTS BUILDING LATER TO BE DEMOLISHED.
3. FOUNDATION WILL BE BEARING PILES AND CAISSONS TO ROCK.

Project: New Home Office building of Mutual Benefit Life Insurance Co., Newark, N. J.
Architects: Eggers & Higgins, New York City.
Engineers: Weiskopf & Pickworth, New York City.

Though superstructure plans were in the design stage, foundation work was under way for this largest Newark office building in 20 years. Photo shows a few highlights. In the structure at left, wall chases are planned for the erection of permanent steel before demolition takes place.

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. . . Reader Comment

on its members' behalf, but it seems obvious that directly such a course moves into a major policy field it must crash head on into the NSPE majority interests. How effective, therefore, can the Functional Group's actions be, and how much can it achieve on behalf of its members where major policy is concerned?

John K. M. Pryke
President,
Consulting Engineers Council
New York, N. Y.

Editor's Note—It is quite possible that there is a need, or at least a field of usefulness, for both types of consulting engineer organizations. Our editorial merely commented favorably on the new idea of employer-employee groups as projected by the NSPE for consulting engineers.

Water Users Will Pay

Sir—A rare exception to the general high level of accuracy in Engineering News-Record occurs in the last sentence of the item relating to the Ventura River Project on p 19 of the July 12, 1956 issue. The sentence states that water users will be repaid the $700,000 in funds already contributed by them for planning work. These funds are part of the local contribution and will not be returned to the water users. In addition, they have contracted to repay to the Federal Treasury, within a 50-year period, $27,500,000 of the $27,669,000 total estimated cost of the project. Over 40% of this reimbursable amount will be repaid with interest. The remainder, which is allocated to irrigation, will be returned without interest in accordance with Reclamation law.

Also, to clarify an apparent typographical error, the contract award for the Ventura project dam was for approximately $8.6 and not $86.6 million as indicated in the item.

N. B. Bennett
Acting Asst. Commissioner
U. S. Bureau of Reclamation
Washington, D. C.

CALENDAR

Building Research Institute, Modern Masonry Conference, Hall of Flags, U. S. Chamber of Commerce Bldg.; 1615 H St. N.W., Washington, D. C., Sept. 19-20.

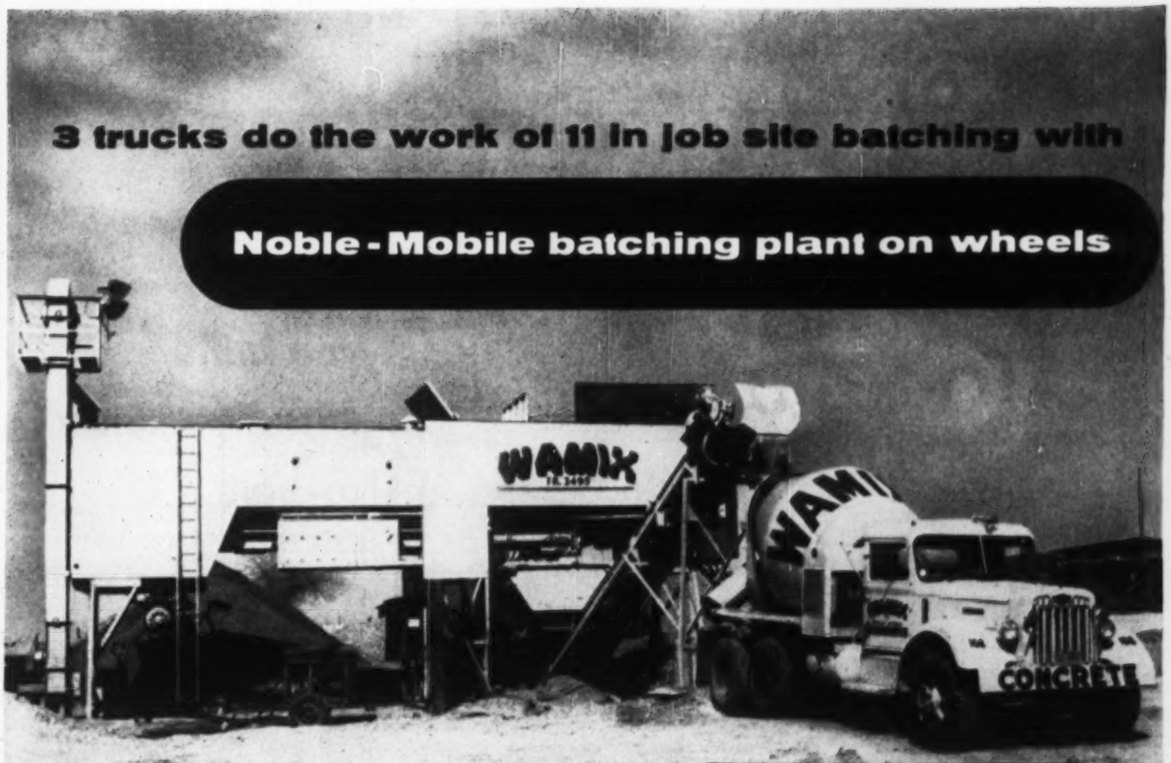
Society for Experimental Stress Analysis, annual meeting and exhibit, Deshler-Hilton Hotel, Columbus, Ohio, Nov. 1-2.

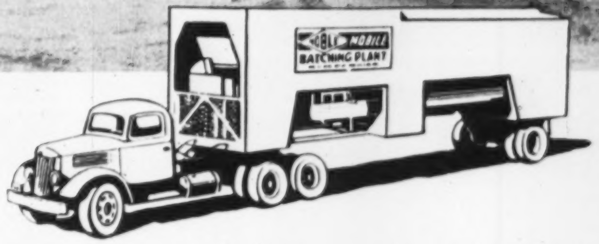
Noise Abatement Symposium, seventh annual meeting, Hotel Sherman, Chicago, Ill., Oct. 11-12.

Sixth Annual Drilling Symposium, The University of Minnesota, Minn., October 11, 12, 13, 1956.

3 trucks do the work of 11 in job site batching with

Noble-Mobile batching plant on wheels





Comparatively small investment in Noble-Mobile eliminates the cost of 8 additional trucks that would be required for the 14 mile haul if batching were done at the base plant, reports Joseph Amis, Wamix, Inc., Dallas, Texas. On this Centex Construction Co. housing project, Noble-Mobile is supplying 50,000 yards of concrete for 1500 slab foundations.

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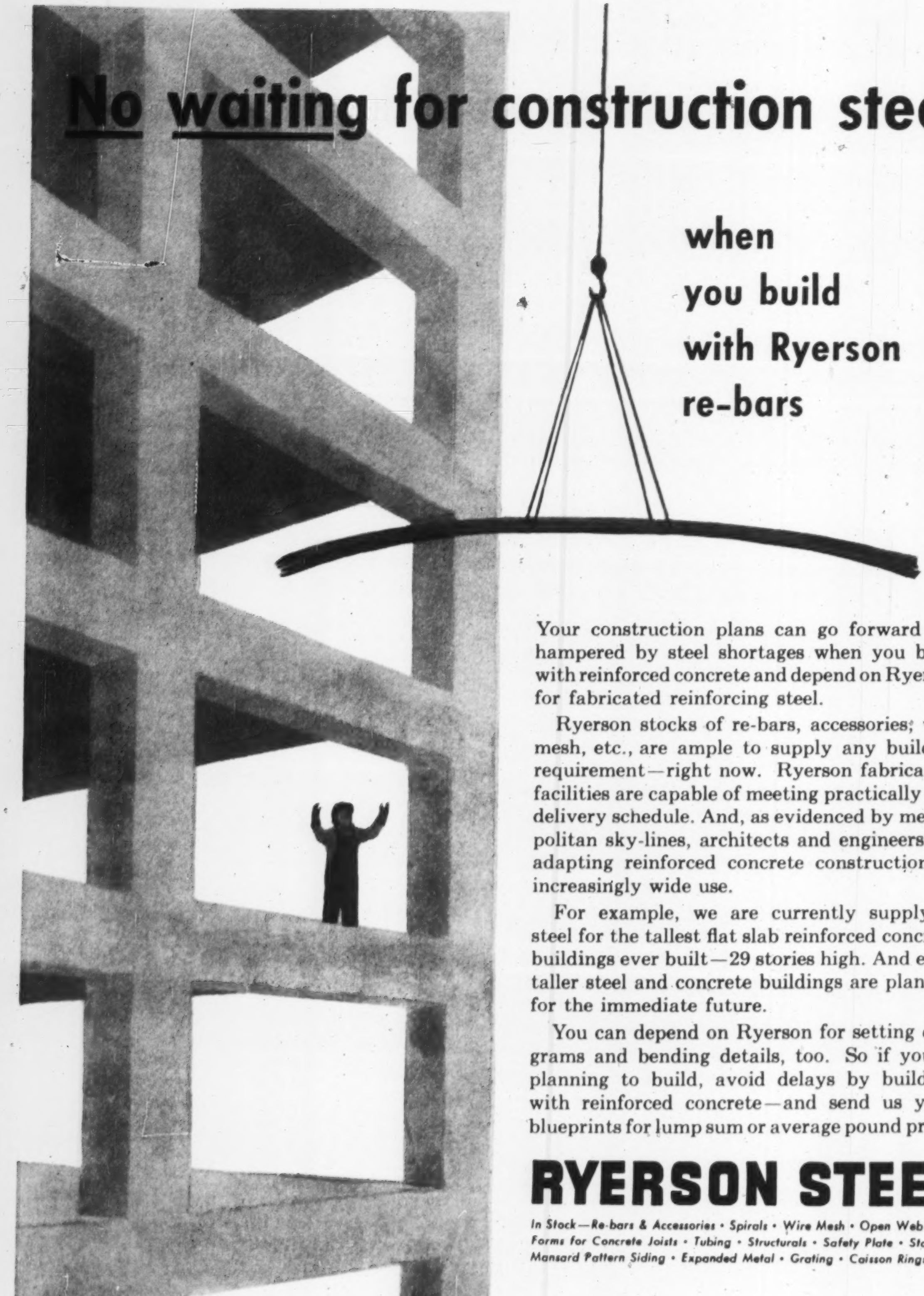

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CONTENTS

NATIONAL AFFAIRS

What U.S. Homebuilders Saw in Russia 21
AFL-CIO Tries to End Craft, Industrial Union Fight . 23
Seattle Crossing Plagued by Legal Doubts 24
Reclamation to Ease Friant Dam Water Controls . . 25
Tennessee May Issue Bonds to Match Highway Funds 25
Penn. Flood Control Program Reaches Action Stage 25
EJC Studies Problems of Professional Standards . . 27
Jubilee Site Readies for 100-ft Tube-Framed Dome 27
Corps Ready to Build McGee Bend Dam 28
Prisoners' Strike May Spur Building Program 28
Chesapeake Crossing Advances With Traffic Study 28
Idle Kentucky Sewage Plant Would Keep Charging 28
Monorail Transit Okayed for Texas State Fair 30
Arizona Protects Road From Mining Operation . . 30

FEATURES

Tests Show Prestressed Piles Take More Punishment 33
Steel Trussed Arches Span 360 ft in Hangar 36
Bridging the Hudson on the Double 42
Crane-Gantry Team Sets Silo Hoppers 47

NEW PRODUCTS

Faster Land Clearing With New Mower 49
Floodlight Is Flexible and Lightweight 49
Prefab Trussed Rafter Is Collapsible 50
Rear Axle for Heavy-Duty Cranes 50
Back-Pack Rock Drill 52
New Backhoe Digs to Deeper Level 54

INTERNATIONAL

Columbia Starts Building Its TVA 61

FIELD AND OFFICE

Window Panes Are Picked Up By Air 64

RESEARCH

Structural, Fire Research Center Planned by PCA . . 66
Reclamation to Study Frost Action on Concrete . . . 66

MEN AND JOBS

New Executive Officer of North Pacific Division . . 73
Lloyd Named Chairman of ORSANCO 73

BUSINESS AND FINANCE

Impact of Road Program on Materials, Manpower 130
July Contracts Set Record for the Month 134
Rochester Approves $43-Million Civic Center 134
Wages Push Costs to Record, Steel Hike Due 134
Canadian Steel Strike Averted 136

LABOR

Voluntary Wage Freeze Urged 139
UA Apprentice Contest Under Way at Purdue . . . 139
Damage Suit Pending on Nike Base Picketing 140
Payment of AGC Sewage Rates to City Workers Questioned 140
The Taft-Hartley Act Works Both Ways 140
Dangerous Conditions May Justify a Strike 140
Reader Comment 8
Calendar 14
Washington Observer . 19
Obituaries 74
Books 81
Legal 84
Unit Prices 91
Materials Prices 92
Construction Reports . . 94
Scoreboard 130
Editorials 156

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Price 35¢ each copy except Annual Cost Issue. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

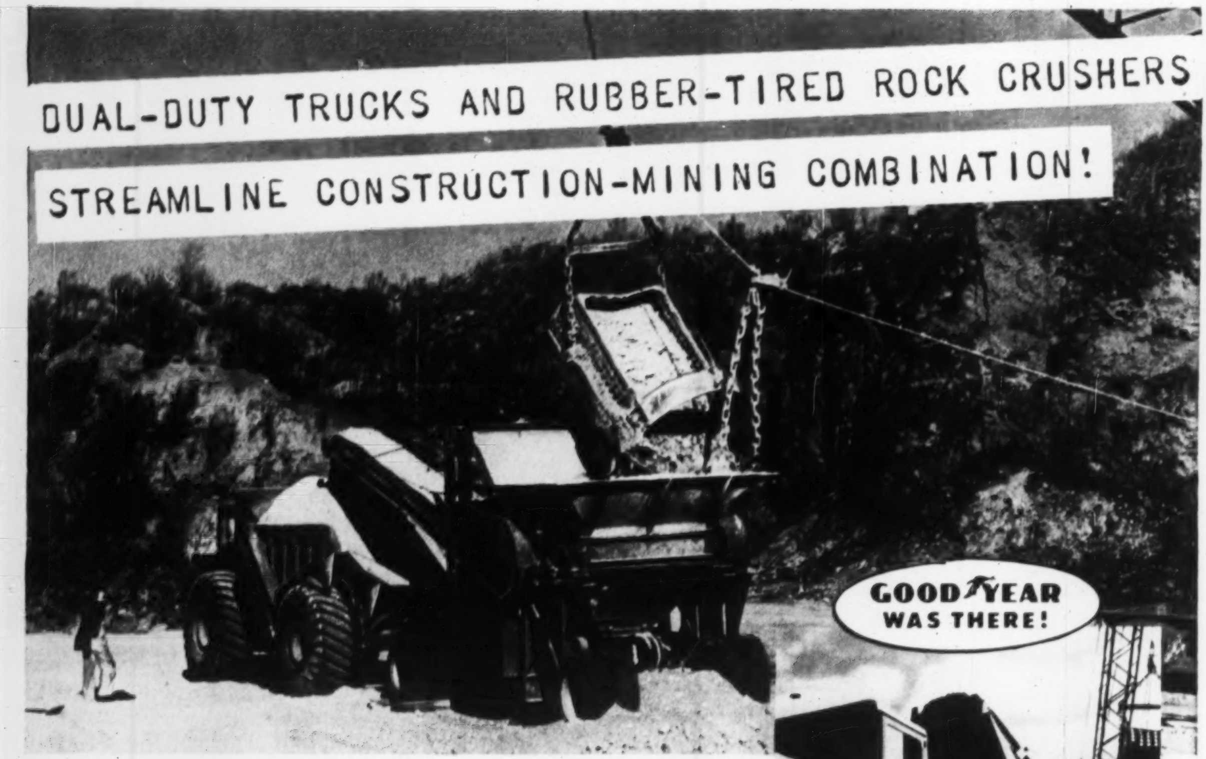
THE CONSTRUCTION WEEK

THE NAMES WERE THE SAME—The Pennsylvania Turnpike Commission a few weeks ago was forced to give up its practice of taking closed bids on maintenance work (ENR June 21, p. 17). It subsequently rejected three bids on resurfacing work totaling $2,073,374 and advertised for competitive bids. To the chagrin of the state administration, not only did the new low bids turn out to be $89,321 higher but the low bidders turned out to be the same as before. A frustrated Attorney General's office is now looking into the matter again.

A MATTER OF PRIDE—The Arizona Lath and Plaster Institute has assigned itself the mission of trying to rid the language of the word "plastered" as used to describe someone who has over-imbibed. The institute made its first plea to publishers of Roget's Thesaurus in a telegram requesting that the word "plastered" be deleted from the list of synonyms for "intoxication." Misuse of the word is disturbing to the professional pride of the modern-day plasterer, the institute said. And, after all, declared William F. Mitten, the institute's executive secretary: "You don't say a person gets shingled, painted or landscaped—why say he gets plastered."

THE PEOPLE'S CHOICE—Los Angeles voters will pass judgment this fall on whether to discard the present earthquake-inspired building-height limit of 13 stories or 150 ft in favor of a total floor-area limit of 13 times the area of the site. Prior to the City Council's Aug. 1 decision to put the issue to a referendum this November, the proposed change had been under consideration for some time (ENR Jan. 12, p. 17).

HIGHWAY ROBBERY?—A Mississippi River bridge linking Alton, Ill. and West Alton, Mo. is the scene of a lively feud these days. The bridge, which was built as a toll facility by Missouri's St. Charles County, was made toll-free in June and deeded to the Missouri Highway Department. Alton officials immediately levied a 15-cent toll at their end of the bridge. The Illinois municipality contends that, with no other free crossings in the area, the bridge is carrying an ever greater traffic burden and intensifying the need for the Illinois Highway Department and the city to provide expensive approach roads and other improvements. Missouri threatens to take the matter to the U. S. Supreme Court. Meanwhile, just to be on the safe side, Alton is banking its toll collections and motorists are demanding receipts from toll takers.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WASHINGTON OBSERVER

The housing slump is continuing—and government action may be coming to try to stop it. Government officials are not as worried as are private homebuilders, but they acknowledge there is little improvement in sight without new remedies being tried.

●

Liberalized credit is the cry of the industry. John M. Dickerman, Executive Director of the National Association of Home Builders, warns that housing starts will drop to barely a million this year unless some credit loosening is ordered by the Federal Reserve Board. Reinstitution of a no down payment regulation for VA housing is also being requested. The government is studying the proposals.

Dickerman's guess of a 250,000 drop is topped by some builders. Government officials report they've heard estimates of a total housing start figure of 800,000—off badly from last year's 1.3-million plus. Economists doubt such a fall off, but do figure that the June dip signals a continuation of the decline. Administration economists think the total will go below 1-million. To date this year, starts have been hovering around 1.1-million on an annual basis. The June dip went down to 1.070-million.

●

Lease-purchase construction of federal buildings is moving. General Services expects to invite bids for more than $150 million worth of facilities within the year. Similar Postoffice Department programs are moving, too.

This week GSA invited two bids: For a six-building project at Atlanta for a communicable disease center for the Public Health Service. Bids will be due by Sept. 27 for the $11,550,000 project. The other, a federal courthouse and postoffice at Council Bluffs, Ia., estimated cost, $1,500,000. Bids are due Sept. 18.

Soon to be announced for bids is a federal building at Omaha, Neb. GSA has approved a design for the 400,000-sq-ft, $9,579,823 project. It will use glass, metal and brick, and be of contemporary design. The lease-purchase program now encompasses some $480 million of building.

●

Civilian atomic construction will move slowly, painfully. That's the lesson in the newest hassle about the safety of a proposed $40.5-million Michigan project for a fast breeder reactor—the type that produces new atomic fuel by burning atomic fuel. The Atomic Energy Commission overrode its own expert advisers to grant a construction permit, although warning that safety problems must be solved before it will issue a license for actual operation of the plant.

Despite that reservation, a public flareup followed. At least, part of the flareup is due to hostility felt by Congressional Democrats toward AEC Chairman Lewis Strauss. But no matter what the cause, it's a situation that casts a pall over the budding civilian atomic industry.

●

Passamaquoddy hits the news again. The U. S. and Canada have asked the International Joint Commission, which controls boundary waters between the nations, to come up with fresh cost estimates for a project to produce electric power by harnessing tidal waves of Passamaquoddy Bay between Maine and New Brunswick.

U. S. is contributing $3 million to pay for the bulk of the new survey. Canada will chip in $300,000. The move encourages backers of a Passamaquoddy project, but the U. S. specifically warns that the cost survey does not imply any commitment toward actual construction.

Drive-in Motor Lobby for

'Incor' Speeds Completion of 650-Car Garage

Dallas Adolphus Hotel

● Adolphus Hotel of Dallas is among the first to provide automobile drive-in facilities for guest registration. Hotel elevators lead directly to the Motor Lobby in the new 650-car garage, which covers 200 by 100 ft., with full basement, six floors and roof parking.

Good job planning and dependable 'Incor' high early strength made it possible to complete this durable, fire-safe structure seven months and two days after breaking ground, including time out for bad weather.

'Incor' was used in the frame as well as in basement walls, for 24-hour form removal. Result, top construction speed with fewer form sets. Same thing holds true for beam soffets and sides. Exterior street walls are concrete and glass, with lintel beams forming solid portion of walls.

Also used in 105,000 sq. ft. of precast, light-weight channels, 'Incor' made possible assembly-line production speed, with minimum forms and only a small stockpile of units in casting yard.

Big thing about 'Incor'* is profitable job speed. And along with dependable high early strength goes assured high ultimate strength as well—dual reason for insisting on America's FIRST high early strength Portland cement for lowest annual cost.

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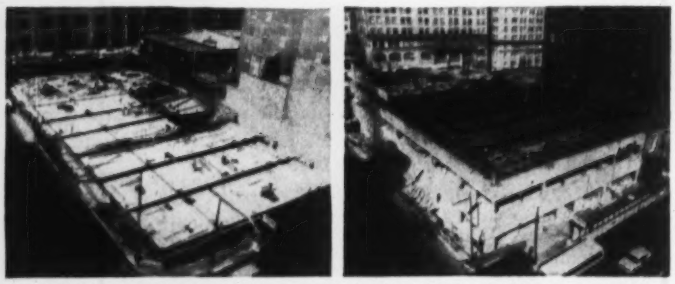

(Left) View showing precast channels in place for first floor. (Right) photo shows manner in which floors were completed—excellent job organization and 'Incor' speeded construction of well-designed, fire-safe, durable structure.

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AUGUST 9, 1956

ENGINEERING
NEWS-RECORD

What U. S. Homebuilders Saw in Russia

City planning considered excellent . . . precasting speeds erection . . . heavy equipment used ineffectively . . . finish work is poor in quality . . . new housing is old fashioned

A group of U. S. homebuilders, returning from a tour of the Soviet Union, has brought back a fine description of Russian building methods but little information that would advance U. S. construction.

The U. S. delegation, however, was greatly impressed by city planning in the Soviet Union. But, as with several other things the Russians are doing well, the techniques employed may not be applicable in the U. S. for economic reasons.

The group consisted of 14 homebuilders, two realtors, the public relations director of the National Association of Home Builders and an interpreter. For 30 days, from mid-June to mid-July, they toured behind the Iron Curtain, visiting twelve cities in Russia and three in Czechoslovakia.

The trip was arranged by NAHB after a Russian delegation of housing experts toured the U. S. (ENR Nov. 10, 1955, p. 22).

• City Planning

The U. S. homebuilders had these comments about Russian city planning:

"It is very thorough," says Thomas P. Coogan, of New York City. **"Every city has a master plan, and they revise the plans from year to year. They work toward perfection, gaining a little each year. Not only the new cities have master plans, but the old ones also. Old ones like Yerevan (Armenian capital) will be rebuilt.**

"In the zoning of cities, it seems apparent that the Russians are depending on mass transportation rather than autos. Workers are housed in apartment buildings no more than five minutes away from their jobs." Thus, many of them can walk to work, minimizing the amount of mass transportation needed.

Earl Smith, El Cerrito, Calif., comments that city planning is easier when there is no private ownership. He praises the interesting layouts, broad streets and attractive buildings—some rather ornate.

John R. Worthman, Fort Wayne, Ind., notes the extensive use of models made by the Russians to demonstrate planned projects. City planning, he says, follows closely the pattern of current and proposed activities. For example, Leningrad has considerable construction under way for shipping facilities, both export and import. Moscow is not being developed to any great extent for industrial activities. The Soviets locate steel mills close to coal mines, also along rivers to take advantage of water transportation.

Edward W. Pratt, Royal Oak, Mich., was impressed by the wide streets. In Moscow, he observed, one of the main streets has been widened to 300 ft, and many other streets in that and other cities are more than 200 ft wide. They use asphalt paving, landscape center malls and line the streets with trees.

• Reds build mostly apartments—Perhaps the U. S. homebuilders were disappointed in the construction they saw because they build one or two-story houses and almost exclusively with wood framing, whereas the Russians are building apartment houses four to seven stories high (no elevators) and almost exclusively with concrete.

Several large apartment building projects were visited, some of which are on sites as large as 100 acres. Worthman says the Russians call them micro-units, signifying that the overall project is made up of a number of individual self-supporting units. One government agency constructs them, another manages them.

Since sites and buildings are government-owned, there is practically no delay in securing a site, dispossessing occupants of buildings on it and demolishing the structures. In this respect, the Russians move much faster than developers in the U. S.

Each ministry is responsible for its own housing. When a big hydroelectric project is started, for example, permanent housing will be built and the construction workers will use it until the job is finished. Then, the government will start industries around the project, and as the construction workers move out, industrial workers move in.

Individual housing is not encouraged. However, if someone outside a city wants to build a private house, he can obtain a government loan and buy some of the materials at subsidized prices.

But cement, steel and lumber have to be bought at "open market" prices (from government-owned stores).

Some of the Russian developments contain a dozen or more apartment buildings, with playgrounds, kindergartens and schools. Stores are located on the ground floor of each building, though some have a communal nursery on the first floor. Each project is supplied with steam or hot water for heating from a central heating plant, with coal or peat-fired boilers. But, Carl T. Mitnick, Merchantville, N. J., points out, Russian tenants are happy to have the temperature brought up to 63 F, compared with the 70 F-plus U. S. apartment dwellers demand.

• Over-Mechanized

The Russians, Pratt reports are sold on **"industrialization of buildings,"** but they have gone too far. Apartment houses are constructed of precast concrete, including even window frames and sash.

Structural steel is at a premium. Concrete is used extensively, and much of it is rigid frame to conserve steel. Precast units are fabricated with reinforcing projecting, to enable the bars to be welded to reinforcing from adjoining units, to establish continuity.

Local building materials are generally used because of the scarcity of transportation. Thus, where lightweight aggregate is available, the Russians make lightweight concrete. Sometimes, walls are made of prefabricated brick panels.

According to August Rahlves, Jr., Oakland, Calif., the Russians use prefabricated panels in all types of construction—beyond the point of efficiency—because of a shortage of skilled labor. He notes that they also over-mechanize, in the plant as well as on the building site. In the plant they sometimes use a crane when a wheelbarrow would be faster and more effective. And at the opposite extreme, they move sand on a pallet carried by

. . . What U. S. homebuilders saw

two women when a wheelbarrow would be better.

"At the building site," Rahlves comments, **"the Russians erect two cranes on rails on either side of the building, in a semi-permanent installation, and use them instead of the elevator system we use. They will use the cranes even when just starting the structure, unnecessarily tying up crane operators."** Small power tools were not seen.

The cranes, however, are needed almost from the start, for even the foundation may be made of precast concrete. Most apartment buildings have load-bearing walls. So as soon as the precast footings are placed, the cranes set wall panels right on them.

• Precast Walls

Two types of precast walls were observed. One type is wiremesh reinforced, generally about one story (10 ft) high, 8-in. thick and perhaps 6 ft or 8 ft long. The panels are joined by welding steel plates embedded in each edge. The other type consists of 20-in. thick blocks (sometimes made of a soft brick), which are joined on the site with mortar. The 20-in. thickness provides the insulation needed in the cold climate.

Some of the interior walls and ceilings of the big apartment projects are concrete, finished to such a smooth texture that they can be painted readily to present a very attractive appearance, Worthman reports. In other jobs, they use gypsum wallboard set in mastic applied to rough-finished concrete or brick walls.

Electricity is available, but most of the wiring in the apartments is exposed, of the old-fashioned twisted wire and porcelain-knob type in vogue in the U. S. about fifty years ago. In some cases, a small steel channel is recessed in the masonry to house plastic-coated electric wiring and is covered with mortar.

Pratt says the outside of the buildings is finished with stucco of 3/16-in. thick clay tile attached with mortar, but the spaces between the tile are not filled. When asked about this technique, the Russians replied, **"The buildings will settle and the joints will close together by themselves."**

Pratt believes that repeated freezing and thawing in the Russian climate will cause this facing to crack and deteriorate rapidly.

Smith reports Russian mortar to be of low standard. He saw many buildings where huge sections of plaster or ceramic facing had fallen off. Summer and winter, he observed, they have trouble with mortar.

In talking with job superintendents, Smith found that they had no understanding of or particular concern with the basic principles of mixing and working mortar. They formerly were grocers or farmers, and while they had a pretty good grasp of engineering principles, they just hadn't taken the trouble to learn the essentials of construction.

• Skilled Labor Short

The big blind spot in Russia, Smith believes, is the failure to develop skilled labor. They are concentrating on turning out engineers and scientists, but aren't doing anything about developing craftsmen and technicians.

Another blind spot is in the failure to provide hand tools and wheelbarrows. Smith didn't see a steel wheelbarrow, only an occasional crude wood one. Nor were there enough trowels; he often saw mortar placed with the hands.

Power on the job is concentrated in cranes, Mitnick reports. He believes they had more cranes in one city than can be found in the whole U. S. He comments:

"There are no light power tools to be seen . . . women do much of the labor. They are hod carriers. They go around armed with a bucket of plaster or cement, patching up the results of shoddy workmanship of a year or five years ago."

Pratt comments: **"Forty-five percent of their work force consists of women. In an architectural office, we saw 200 women at drafting boards. Most of the day laborers we saw on the job were women. They were the electricians and bricklayers."**

It isn't uncommon, says Worthman, to see a female brick mason attended by a male apprentice. The Russian women get equal pay for equal work.

A laborer makes between 1,000 to 1,300 rubles per month. Supposedly, four rubles are worth one U. S. dollar. However, actually a ruble is worth less than 25 cents. In Zurich, Pratt says, the ratio was one ruble to a nickel.

• Bare minimum—The philosophy of the Soviet government in supplying living space appears to be:

"Man is entitled only to what he needs."

The norm for each person is 95 sq ft of living space. (This does not include space for kitchen, bath or halls.) Eventually, the Russian goal will be 158 sq ft per person.

If a family of four occupy 380 sq ft and the young ones move out, the parents must move to a smaller apartment, even though they can afford the larger living area. One apartment the group saw had in one room a dining table and a bed.

Pratt reports all lavoratories and fixtures are **"quite low by our sanitary standards—in fact, they are antiquated. The design is bad."** If a tenant wants cabinets or refrigerators in the kitchen, he must supply them himself.

Worthman sums up his observations as follows:

"Apartment building, hotel construction and light industrial and commercial construction in Russia today has a little of the best of the U. S. contemporary design and building techniques and a whole lot of what we had in this country 50 to 75 years ago."

Road Administrator

Post created to administer federal highway program

Congress' sudden action two weeks ago in pushing through legislation creating a new position of Federal Highway Administrator—against the advice of highway user organizations and state highway officials—seemed to be making more sense this week.

What the legislators did was to consider briefly a proposal by Sen. Albert Gore for an independent three-man agency to manage the huge federal highway program—then quickly accept a counter-proposal by the Administration to name a single administrator. This administrator is to be appointed by the President to work with the Secretary of Commerce on an administrative level to supplement the department's direction in the highway field.

With signing of the bill last weekend speculation began immediately on two points: Who the new administrator would be; and what were the basic reasons behind what appeared to be Congressional doubt of the ability of the existing Bureau of Public Roads to administer the huge $32.5-billion, 13-year highway program.

Careful checks of informed sources in Washington and elsewhere resulted in these answers:

As this week began, it was obvious that Commerce Secretary Sinclair Weeks hadn't officially sent any recommendations to the White House, but it was equally obvious that Weeks had some definite men in mind for the new post.

The Washington rumor mills, however, ground out the names of a number of candidates. These included: Francis V. DuPont, former BPR Commissioner; Missouri State Highway Engineer Rex. M. Whitton, who is also president of the American Association of State Highway Officials; retired General Lucius Clay, who headed up the original President's committee which drew up what later became the Administration's "Grand Plan" for highways; and Bertram D. Tallamy, head of the New York State Thruway Authority and former State Public Works Director.

• Why an administrator?—BPR is a very large organization both in personnel and in the scope of its activities. Now concentrated in the office of C. D. Curtiss, BPR Commissioner, are at least four major functions—any one of which could be a full-time job in itself.

In the first place, the Commissioner is administrative head of an agency with more than 3,600 employees, and must cope with the myriad personnel problems such a staff presents. He is—on a sub-Cabinet level—a policy-maker and adviser to Congressional committees, the executive, and to many other government agencies. He must function as an arbiter in disputes between the federal and state governments. Finally, he is the head of a major engineering and research organization and must have considerable technical knowledge to direct these functions.

• Shifts due?—BPR's competence has not been questioned and assurances have been given that no reorganization is contemplated this year. Certainly no disturbance of BPR's time-tested working arrangements with the states is planned.

The present Commissioner—who has indicated his desire to remain in his present post—will continue to be responsible for detailed administration of the highway program and day to day operations of the bureau.

But appointment of an administrator actually seems to shape up into the first step toward some broader shifts or changes in the future. The top job is expected to become permanent. But the bureau itself may be transferred to some new authority—and staff reorganization seems bound to occur as the agency adds more top people in executive positions.

Secretary Weeks has declared his intention of beefing up BPR and is strongly supported by many in Congress. The bureau will get a number of new "supergrade" jobs, paying $10,000 to $15,000 a year, as a result of action taken just before Congress adjourned.

• Push continues—Although Congressional leaders said there was no good reason to deny Weeks' request for an administrator, they added that his appointment might be called an interim step, to be followed by other actions.

Gore, for instance, explained that "approval was given with the full understanding by the committee and the Secretary that the action would not prejudice consideration next year of Gore's own plan to establish a bipartisan Federal Highway Commission to take over BPR and handle the highway program.

Gore is strong for creation of such an independent agency. He told ENR last week: "The things we need for the (highway) program are men of the highest caliber, and the prestige and independence of a separate agency, with long tenure of its board members." His bill called for nine-year staggered terms for the commissioners—much stronger in this respect than the measure authorizing appointment of the administrator. Gore said he plans to push for his plan next year.

• Highway groups protest—Highway groups had little influence with Congress on the quick legislation.

Fourteen of them had sent a letter to legislators asking them to hold hearings and investigate proposals carefully before recommending any changes in the federal highway organization. And representatives of AASHO backed this suggestion in testimony before the Senate committee.

Peace Proposals

AFL-CIO tries to end fight between craft, industrial unions on in-plant work

This week, AFL-CIO leaders made their first formal peace proposals for ending the age-old conflict between craft and industrial unions over construction work in industrial plants.

The plans, first concrete results of months-long AFL-CIO efforts to find a solution, were offered to a special meeting of the conflicting groups—the AFL-CIO Building Trades and Industrial Union Departments. They were the outgrowth of the appointment of a special subcommittee of the AFL-CIO Executive Council, named after the building trades had forced the issue into the open by withdrawing their support of union mergers on the state level.

The two plans—one drawn up by bricklayers' president Harry Bates and the other by AFL-CIO special counsel Arthur Goldberg—concede that no flat formula can be written to spell out the factory construction work jurisdiction for craft and industrial workers. Both approach the problem as one that should be solved on a piece-meal basis.

• The Bates approach—While pointing out that it "is probably impractical to expect that any substantative agreement can be negotiated between the building trades and industrial unions which defines jurisdiction . . . ," Bates suggests the solution lies in finding some new machinery to handle complaints as they arise. However, he notes that most situations vary according to industry and practice, and that information on past disputes should be gathered for lengthy study before any machinery is set up.

According to Bates, a simple formula is out of the question for several reasons: Industrial unions cannot control employers work assignments because "industrial plants have a vital interest in deciding whether to use their own forces or hire contractors." In addition, says the bricklayers' president, the dividing line between new construction and maintenance work "is impracticable and unadministrable" because contractors do other than new construction; and the dispute exists not only with former CIO unions but also between craft unions themselves.

With this in mind, the union official suggests that some sort of machinery be drawn up eventually for "an orderly discussion of complaints," and he recommends that a joint technical subcommittee be named to work out such a procedure.

• Goldberg plan—Goldberg's proposal is more specific. While he also declines to "establish lines of jurisdiction," the union attorney suggests that a three-man arbitration board be established to handle craft-industrial disputes. His board would consist of the arbitrators of the AFL-CIO's no-raiding agreement, the National Joint Board for the Settlement of Jurisdictional Disputes and the CIO organizing agreement.

In cases where the three-man panel failed to get disputes settled by voluntary agreement, it would submit a solution to the AFL-CIO Executive Council for action. While not specifically spelling this out as arbitration, any recommendation of such a committee would carry sufficient weight to be the final decision.

It's unlikely that either plan will be adopted in toto. Both proposals lean to the industrial union philosophy of handling the jurisdictional disputes on an ad hoc basis, while some of the building trades leaders want decisive action that will prevent what they consider growing jurisdictional encroachments by industrial unions.

Bridge Dilemma

Proposed Seattle crossing plagued by legal doubts

Meeting July 26 at Seattle, Wash., the Second Lake Washington Bridge Citizens Committee approved a recommendation of DeLeuw, Cather & Co., Chicago consulting engineers, that the second bridge be constructed adjacent to the existing floating structure east from Seattle.

Action is now up to the Washington Toll Bridge Authority, which is expected to announce its decision about Aug. 15. It need not accept the findings of the Citizens' Committee. And even if it does, legal and financial complications are such that the $35-million project almost certainly will be postponed until after the state legislature meets early next year.

The existing bridge would remain toll-free, under the recommendations of the Chicago engineers, but would be used only for east-bound traffic. West-bound traffic, on the new bridge, would pay a 25-cent toll.

"There is a serious question of the legality of placing tolls on a new bridge alongside the present bridge," declared Attorney-General Don Eastvold. "Before toll-revenue bonds could be sold, this question would have to be adjudicated by the State Supreme Court. A test case of this kind would require many months."

A second legal question, said Eastvold, involves compliance with a section of the law authorizing a second bridge which requires that its approaches extend to Seattle's central business district. The terminus now designated for the new bridge falls outside the section formally designated as the central business district.

Meanwhile, cracks have developed in suburban opposition to the recommendation for a parallel bridge. Initial reaction was almost unanimously unfavorable but a newly-formed group calling itself Eastside Commuters for the Parallel Span is supporting the recommendation.

The DeLeuw, Cather & Co. report was explained to the Second Lake Washington Bridge Citizens' Committee by William R. McConochie, chief engineer of the company's traffic and transit section.

McConochie told the group that a bridge beside the present one will be necessary soon, regardless of whether one is built on a more northerly site, as sought by many residents across the lake from Seattle. The present structure will be carrying all the traffic it can accommodate by 1960, the earliest date at which a second bridge could be in operation. In 1975, regardless of whether a bridge is built at another place, the traffic flow at the present bridge will be more than double the present figure of 33,000 vehicles daily, because of expected population increase in communities across the lake from Seattle.

The parallel bridge should logically be constructed first because it is the only one that can be financed now, said McConochie.

Computer Graduate Program Set for Stevens Institute

A three-year night-class graduate program in the design, selection and operation of electronic computers will be inaugurated this fall by Stevens Institute of Technology, Hoboken, N. J. It will be available to engineers, mathematicians and physicists who will be able to continue their full-time jobs. Graduates of the two-nights-a-week program will be awarded a master's degree.

In the first year, emphasis will be given to mathematics and the study of electronic circuits. The second year program will be concentrated on a study of the two general classes of computers: analog and digital. In the final year, the courses will cover linear programming and the preparation of instructions (programs) for computing machines.

Case studies of current computer practices also will be reviewed in the last year of the course.

Applications for admission are now being accepted; classes begin September 24.

Radar Network for Storm Tracking to Be Improved

The U. S. Weather Bureau has contracted to buy 39 new-type weather radar units, capable of detecting and tracking hurricanes and tornadoes up to 250 mi away.

In addition to better protection for work in progress, the construction industry can look forward to about $500,000 worth of tower building contracts for the new radar network. The units themselves will cost about $100,000 each.

When the units are delivered—probably in early 1958—they will be linked into a nation-wide network of radar weather stations. The network will reduce to a minimum present difficulties in plotting hurricanes as they approach the coast.

Preliminary investigation indicates that these stations also will be useful in determining the total amount of rain falling over a particular watershed —information that would be of great value in forecasting the size and extent of flash floods.

Record Month for Ohio Pike Despite Truck Traffic Drop

Despite a sharp decrease in commercial traffic because of the steel strike, revenue from operation of the Ohio Turnpike climbed to a record $1,815,000 during the month of July, according to a report from James W. Shocknessy, Chairman of the Ohio Turnpike Commission.

Cash tolls amounted to $1,387,683, with charge accounts and concessions providing an additional $427,317 estimated for the month. This represents an increase of more than $270,000 over the previous high figure for the turnpike.

Shocknessy claims that there can no longer remain any question that the passenger automobile is, and will continue to be, the assurance of success for the tollroad both financially and as a facility designed for traffic congestion relief.

Three-State Net Planned For N. Y. Traffic Control

A three-state warning network to permit coordinated police traffic action will be ready for operation by the summer of 1957.

Under the plan, police authorities in Connecticut, New Jersey and New York will be coordinated, to permit detouring of traffic around temporary traffic trouble spots during peak summer traffic periods, on weekends and holidays.

According to spokesmen for a regional steering committee set up by New York City's Mayor Robert Wagner, the idea for the police network was first suggested by Police Chief D. W. Robbins of Greenwich, Conn., and has since been endorsed by New York's Police Commisssioner and other officials.

Spring Set for Work Start On Biggest Delaware Road

The Delaware State Highway Department will begin construction next spring on a $10.6-million dual, limited-access expressway connecting the Delaware Memorial Bridge (to New Jersey) and Maryland's proposed Northeastern Expressway.

The new road, announced by Richard A. Haber, chief engineer of the Highway Department, will be the state's first limited-access facility, built under provisions of a law that has recently been enacted by Delaware's General Assembly.

Maryland expressway will extend from Baltimore to the Delaware state line, connecting with the Delaware facility at a point south of Newark, Del.

San Joaquin Ruling

Reclamation told to ease Friant Dam water controls

A federal judge has called upon the Bureau of Reclamation to build 10 check dams along California's San Joaquin River below Friant Dam and to increase water releases from the dam so as to operate its Central Valley Project "with due regard to existing water rights" of riparian users.

The ruling, a supplemental opinion to a San Joaquin water rights decision made in February, comes after nine years of litigation over low flows and a lowering groundwater table along a 40-mi stretch of river just below Friant Dam.

Reclamation's Friant Dam diverts San Joaquin River water into the Madera and Friant-Kern Canals to supply irrigation needs in the Central Valley area. Replacement water for the north-flowing San Joaquin is supplied from Shasta Dam in northern California through the Delta Mendota Canal. However, this water enters the San Joaquin at Mendota Pool, about 40 mi below Friant Dam.

Landowners, municipalities and irrigation districts along this 40-mi stretch brought suit nine years ago against Interior Department officials and 16 irrigation districts served by the Madera and Friant-Kern Canals. The plaintiffs complained of broken suction and inflow of sand at river intakes during low flow and a possible depletion of the groundwater in the surrounding area. Underground flow was a controversial issue, with the landowners' consultant claiming that the San Joaquin at normal flow (2,400 cfs) supplied groundwater as far as 11 mi from the river bed. Reclamation experts held that groundwater flows in just the opposite direction—toward the river from groundwater ridges, or high points, on either side of the river.

However, Reclamation, joined by the State of California which was concerned about the fate of the Central Valley Project, offered to increase Friant Dam releases to 95 cfs and build five check dams at a cost of $250,000. Plaintiff contended 14 movable check dams and an average flow of 360 cfs constituted a reasonable physical solution to the case.

Last February in Los Angeles, Federal Judge Pierson Hall ruled that the landowners were entitled to all the water that can be beneficially used by the land, up to and including full flow of the river, unless the government acquired title to the water (which it hasn't).

Judge Hall's recent supplemental opinion is a physical solution to the case, and apparently a compromise of the stands taken by the landowners and Bureau of Reclamation-State of California. He ordered that unless it was complied with, the government would be prohibited from interfering in any way with the full flow of San Joaquin water.

Judge Hall has emphasized that his rulings do not hold the Central Valley Project, or any unit of it, illegal.

Tennessee May Issue Bonds For Highway Matching Funds

Observers at Nashville said this week that the state administration probably will wait until the next legislative meeting in January before deciding whether to go along with a proposal to issue $45 million in bonds to provide matching funds for federal highway money.

The bond proposal was made by Tennesseans for Better Roads, a group that wants the 1957 legislature to authorize issuance of not more than $15 million in bonds each year for the next three years. Endorsed by Highway Commissioner W. M. Leech, the plan proposes to take "full advantage" of the new federal highway program.

Commenting on the proposal, Governor Frank Clement said that it may take until January for his administration to study the proposal and its implications to the state.

Local Flood Control

$33-million state-local plan set for early start

A $33-million state-local flood-control program for the Juniata River Basin in south-central Pennsylvania, a tributary of the Susquehanna River, has reached the action stage.

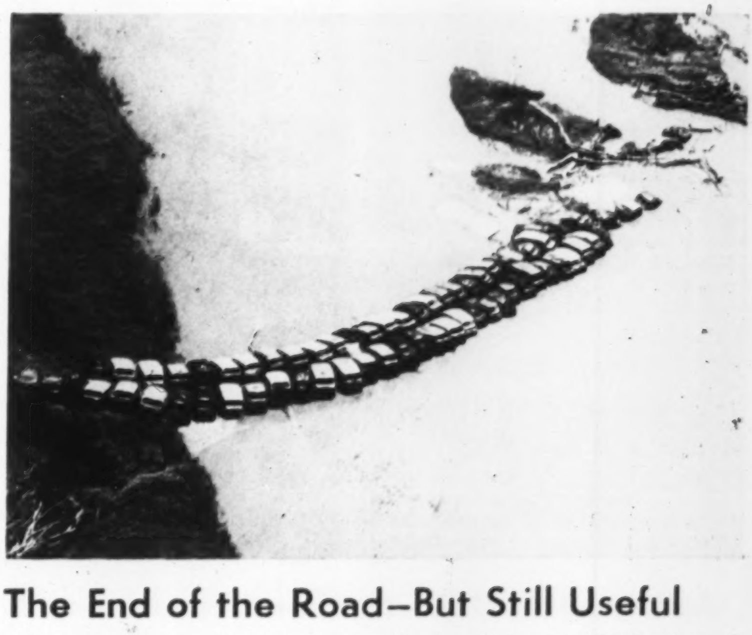
The General State Authority, a borrow-and-build agency, has approved $1,435,000 for three local protection projects (dikes) with the communities contributing an additional $165,000. Early approval by the authority of a $3.5-million dam across Standing Stone Creek near Huntingdon is expected.

The additional dams are to be at Aughwick Creek, Raystown Branch, Honey Creek, Shaver Creek, Blacklog Creek, Spruce Creek, Kishacoquillas Creek, and Trough Creek.

Remainder of the control program consists of several local dike projects and eight additional dams on the Juanita River and tributaries whose costs will range from $2.3 million to $4.6 million. About 60% of the money will be for actual construction.

The broad-scale protection scheme is justified on the basis that recurrence of the Juanita River flood of 1936 could cause $34.2 million worth of damage in the basin.

The state's Department of Forests & Waters organized the project.



The End of the Road—But Still Useful

Old auto bodies are being used in a flood-control attempt along the Kaw River near Willard, Kan. The auto-jetty here is used to divert the flow of water away from the river bank. In other locations, the bodies are scattered on the bank for stabilization. The novel uses are part of a three-county flood-control program.

In Battle Creek, Michigan . . .

Redevelopment Is Everybody's Work

Federal, state, and municipal agencies are joining with private enterprise in a long-range, multi-faceted slum clearance and urban redevelopment program in Battle Creek, Mich.

Minimum cost of the seven-year program is $12 million. But the total could easily reach $25 million, depending upon the ultimate extent of the program.

The program, which includes flood control, slum clearance and rail and highway relocation, has been cited by one government official as an example ". . . of the best in federal and non-federal collaboration in major public works."

Involved in the joint enterprise are the federal government, the State of Michigan, the City of Battle Creek, an electric power company, and two railroads, the Michigan Central and the Grand Trunk.

• Relocate river channel—Under the plan, the Army Engineers will realign sections of the Battle Creek River and relocate the Kalamazoo River channel one quarter of a mile away from its present course through the main business district.

This flood-control project will cost an estimated $7.8 million, including the new, high velocity channel for the Kalamazoo River, designed to carry 8,000 cfs. The present channel winds under several buildings. Obstructions limit its capacity to 500 cfs. (The millrace carries an additional 1,500 cfs.)

Hydrologists have estimated that potential flood damage under present facilities could reach $25 million.

The federal government would bear $4.9 million of the cost of the flood-control work. Battle Creek's City Commission has approved a bond issue of $1.9 million, as part of the city's share. And, the W. K. Kellogg Foundation, has given the city $400,000 to purchase diversion channel right-of-way.

• Overpasses—The State Highway Department and the city will join in construction of six major highway overpasses in the city, including a major expressway involving highway M-78, which enters the city from the northeast. Total cost of the six overpasses will exceed $8 million.

The Highway Department already has appropriated money for the principal overpass which will carry traffic over two railroads and over the flood diversion channel.

The overpass will be 800 ft long. To reach it, M-78 traffic will be routed to a widened Division St., which will connect with the interstate expressway on U. S. 12.

Second and third on the priority list for overpasses are those at Kendall St. and McCamly-Capital. Both will carry vehicular traffic over the rights-of-way of the railroads.

The McCamley-Capital, which would also carry traffic over the flood channel, is the longest of the six proposed overpasses. It will be 1,000 ft long and will cost $2 million.

• Clear slums, build plants—An integral part of the redevelopment plan is a slum clearance project that will result in demolition of more than 300 structures in a three-year period. The cleared sites will provide space for more than a dozen industrial buildings and large parking facilities.

In addition to this, railroad relocations in the city will remove the Michigan Central tracks from the downtown business district and permit a consolidation of right-of-way with the Grand Trunk to ease highway congestion.

To help speed the slum clearance aspects, Consumers Power Co. has donated to the city 56 acres of land and 1,800 ft of millrace.

• DeLeuw, Cather supervises—Overall supervision of the project is under the direction of DeLeuw, Cather and Co., Chicago consulting engineers, who made the traffic studies, designed some of the bridges and coordinated work of all agencies and companies involved.

MODEL SELLING, for the flood-control portion, was this scale model of the complete plan, used in presentations before Congressional committees. The model is 7 by 16 ft, scaled 100 ft to the inch. It encompasses 5.8 square miles of the city, has 12,504 structures and 80 miles of streets.

Employed Engineers

EJC studies problem of professional standards

In the Engineers Joint Council's latest report called, "Professional Standards and Employment Conditions," the growing concern over the working conditions and prospects of the great body of employee-engineers is emphasized once again.

Similar in purpose to a study recently completed by the National Society of Professional Engineers (ENR June 28, p. 26), the report is focused on the problem of creating and maintaining an employment atmosphere consistent with high professional standards. Its basic premise is that "an employment environment which encourages full professional and technical development of employed engineers is essential to the advancement of the profession and the realization of their fullest contribution to the economy."

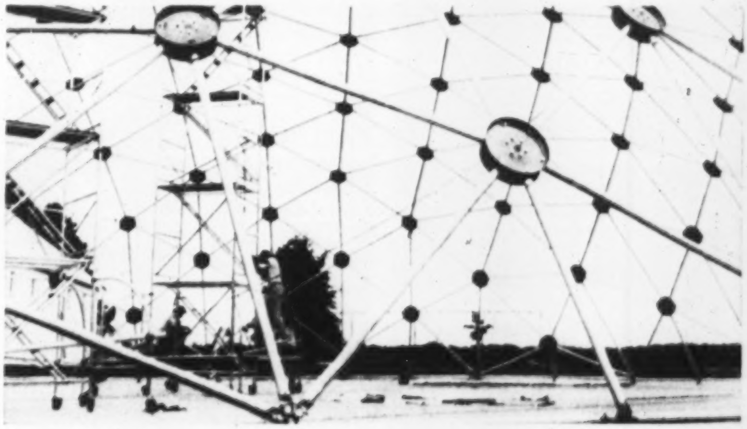
Noting that "there is no simple solution" to the problem, EJC, nevertheless, recommends that:

1. "Management utilize the services of engineers more effectively and thereby afford them opportunity for advancement and economic improvement.
2. "Management recognize its responsibility to make engineers feel that they are a part of management.
3. "Management survey areas of communication, recognition and salaries, and, where found wanting, correct to conform with standards of professional practice.
4. "The engineer take inventory of his services and his actions to make sure that he has a professional attitude toward his work.
5. "Engineering societies establish and employ appropriate means to maintain high standards of ethical conduct for professional achievement.
6. "Engineering societies encourage the professional development of their members and promote proper recognition of the profession.
7. "Engineering educators emphasize the characteristics of the profession."

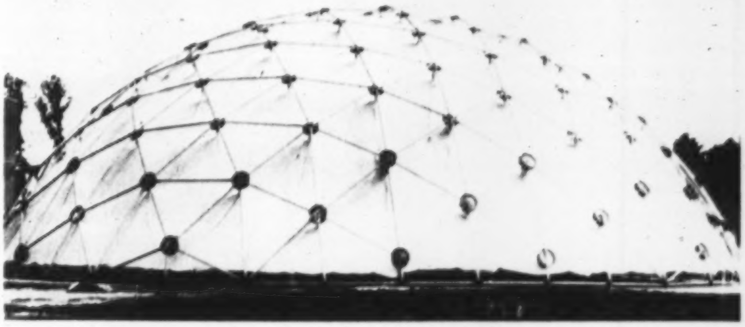
The report, which discusses present employment conditions, their causes and some of their solutions, stemmed from the need "to state clearly the employment conditions that engineers expect as professional men." Noting that about 80% of professional engineers are "employees," EJC says, "The fact that there has been a trend toward collective bargaining by engineers, in spite of widespread reluctance to participate in such action, indicates the existence of unsatisfactory conditions."

Jubilee Site Readied for 100-ft Tube-Framed Dome

Foundations are in for a 100-ft aluminum and plastic dome along the bank of the Mississippi on the site for the Mid-America Jubilee. The aluminum framing was given a trial assembly last month in Durham, N. C., where it was fabricated by the Newton Instrument Co., and will be erected on the St. Louis site in time for the September opening.



Framing for the dome consists of 3-in. dia aluminum tubing, weighing about 12 lb apiece, and aluminum hubs, weighing 11 lb, to which the tubes connect. In the trial run, two crews of three men each, working on 30-ft portable aluminum scaffolding, and three men on the ground erected the frame in 2½ days with block and tackle.



A translucent nylon tent is suspended from the frame. It took seven men six hours to hang it. Final adjustments kept six men busy for another eight hours.

To cost between $40,000 and $50,000, the dome will house a "theater in the round" for fashion shows and other events at the jubilee. It is one of seven major buildings, all of light construction, that are being built by City-County Cavalcade, Inc., a non-profit group. The dome was designed by Buckminster Fuller.

McGee Bend Dam

Corps is ready to build it despite local opposition

The Corps of Engineers, despite some local opposition, is hopeful of beginning construction this year on $50-million McGee Bend Dam on the Angelina River near Jasper, Texas.

However, a local agency, Neches River Conservation District, recently began a location survey for a substitute dam with the approval of the State Board of Water Engineers. A third group, the Lower Neches Valley Authority, has lent its support to the Corps of Engineers project, which has Congressional approval plus $5.5 million for a construction start.

W. F. Weed, president of the authority which has assured the Corps of $3 million of local support toward construction costs, remarked that it is "pretty evident" that lumber interests are behind the action of the NRCD.

The argument between sponsors and opponents of McGee Bend Dam seems to be over the size of the reservoir created and the inclusion of a hydroelectric plant, termed by critics of the plan as "unnecessary and wasteful." They claim that the proposed 130,000-acre reservoir will destroy much valuable timber land.

Bethlehem Steel Co. photo

Walt Whitman Bridge Nears Completion

The last group of steel floor trusses are lifted to form base for roadway of new Walt Whitman Bridge, between Philadelphia and Gloucester, N. J. The $90-million structure (ENR June 2, 1955, p. 51) owned by the Delaware River Port Authority, is scheduled for opening early in 1957. Suspended roadway contains 11,733 tons of steel, hung from the twin 23¼ in. cables from 370-ft-high towers.

Prisoners' Sit-Down Strike May Spur Building Program

A six-hour sit-down strike by 300 inmates of the State Prison at Wethersfield, Conn., may prove to be the force behind a much-quickened construction schedule for a new penitentiary at Enfield.

Plans for such a facility had apparently bogged down over a discussion of whether a wall or a double fence would be constructed as the enclosure (ENR July 26, p. 28).

Although no final word has been received on this point, State Public Works Director Timothy J. Murphy announced July 28 that bids for the initial $2.5-million phase would be called for in October. The announcement followed a sit-down strike in the Wethersfield Prison yard on July 27.

Construction of the new prison is expected to start in November.

Original plans for the $16-million to $20-million facility called for a step-by-step construction, with succeeding legislatures providing $5 million every biennium until the job was finished. The 1955 legislature started the ball rolling last year with a starter appropriation of $3 million.

Even as Warden George A. Cummings resigned Saturday, lawmakers were making demands for larger appropriations and official circles are now speculating that the 1957 legislature will raise the appropriation for the coming biennium to $10 million.

The new penitentiary is planned for a maximum of 1,200 inmates with completion scheduled in 1962.

The first stages under the current initial appropriation, in addition to site development, would be the construction of two cellblocks accommodating 240 prisoners, a small dining room, a kitchen, a temporary boilerhouse, and part of a hospital.

The institution at Wethersfield, built in 1827, now holds nearly 900 prisoners and according to officials is "well beyond capacity."

Proposed Chesapeake Crossing Advances With Traffic Study

Construction of a bridge tunnel across lower Chesapeake Bay to link Virginia's eastern shore with the mainland near Norfolk, should be completed in 1963, according to Lucius J. Kellam, chairman of the Chesapeake Bay Ferry District Commission.

As a preliminary step, the commission has retained Wilbur Smith & Associates of New Haven, Conn., to study traffic phases of the proposed $150-million project. The commission will next consider engineering consultants for the task.

Idle Kentucky Sewage Plant Fights Fee Suspension Order

Sanitation District No. 1 of Kenton and Campbell Counties, Kentucky—whose $8-million Bromley sewage plant was closed by court order in June 1955—was recently ordered to discontinue collecting charges for sewage services until the Bromley plant is back in service.

The Kentucky Circuit Court in Covington made its ruling on a charge by users that the district was performing no service since raw sewage is being dumped into the Ohio River. The district's revenue is now cut off completely. It has appealed the decision, but a lengthy wrangle—no less than 30 days—is forecast.

Meanwhile, the district is working to correct the odor problem at Bromley which caused the plant's closing a year ago, after 12 months of operation. A consulting engineer's report (ENR March 22, p. 43) recommends $200,000 worth of plant revisions plus conversion of the present raw sludge incineration system to a digestion process. Method of treating sludge is still under study by consultant J. Stephen Watkins, Lexington, Ky.

The Bromley plant serves 19 Kentucky cities. Sewage service charges average approximately $25 a year for water consumers.

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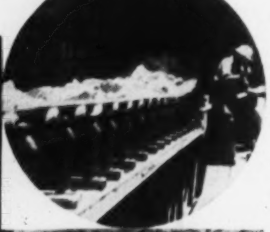

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Monorail Transit Okayed For Texas State Fair

Erectors of the State Fair of Texas have approved a tentative proposal to install a monorail transportation system at Fair Park, in Dallas, in time for the 1956 State Fair which is scheduled for Oct. 6-21.

State Fair president R. L. Thornton said that no contracts had been signed and that the board approved the plan on a tentative basis pending final approval by the Dallas Park Board and the City Council.

The proposal is to construct a monorail line extending from a point near the First Avenue entrance to the fairgrounds to the main parking lot. The line would thus be about 4,000 ft long. In addition to the two terminals, there would be a passenger loading station on First Avenue at a point opposite the main entrance to the Cotton Bowl.

The line would be constructed at its own expense by Monorail, Inc., and operated as a fairgrounds concession by Texas Skyways, Inc., a subsidiary to the Monorail company. The company has built a pilot model of the transportation system in Houston, which is operated for the public several hours each weekend.

Arizona Protects Road From Mining Operation

The State of Arizona has moved to condemn land owned by the Phelps Dodge Corp. so that the land can be used as a highway site without fear that it may later be torn up in the course of mining development.

This is the first action the state has taken to condemn surface rights on a mining claim of any major company.

Land involved is 5/10 mi section of U. S. 80 in the Cochise County town of Lowell. Before permitting the state to build the road over its land, the company had wanted assurance of surface rights in the future. The state feared that the company might thus dig up the road any time it considered ore production in the area feasible.

Long-Range Parking Plan

A survey aimed as a preliminary toward solving parking problems in downtown Wilmington, Del., has started recently.

The survey, being conducted by the New Haven, Conn., firm of Wilbur Smith & Associates, was ordered by the Wilmington Parking Authority to produce a detailed guide for development of parking lots, garages and other facilities. On the basis of the survey, a construction program is planned to provide for parking needs for the next 10 years.

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"Our people had watched a 20-ton crane with a similar rake used for the same purpose. The economy was soon evident of using instead an inexpensive 5-ton capacity crane which proves it has ample power for the operation.

"This hydraulic crane is well suited to handle pipe high overhead as well as in trenches or about the grounds. The crane raises space heaters and assists the men to replace roof sections damaged by acid fumes. It unloads steel beams, bars and deck roofing from cars on the switch track or at the junction or from trucks at the platform. With its towing hook it pulls cars on both our long sidings and spots them where required. It unloads aluminum ingots from gondola cars and stacks them—a job for which we formerly rented a large crane for $10.25 an hour.

"The precision of this hydraulic unit is particularly desirable in raising prefabricated or welded pipe arrangements into place in the plant.

"In construction and maintenance, the Austin-Western unit does an excellent job of pouring concrete as it comes out of the Redi-mix truck, and the pouring can just as well be two or three stories in the air."

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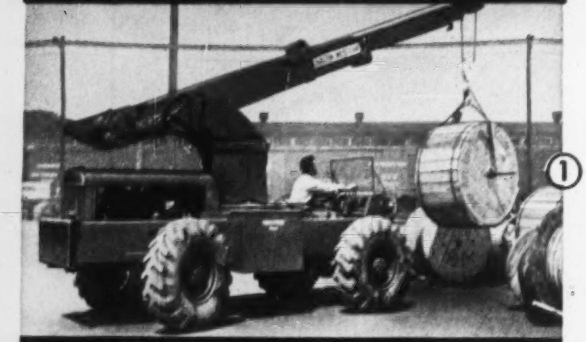

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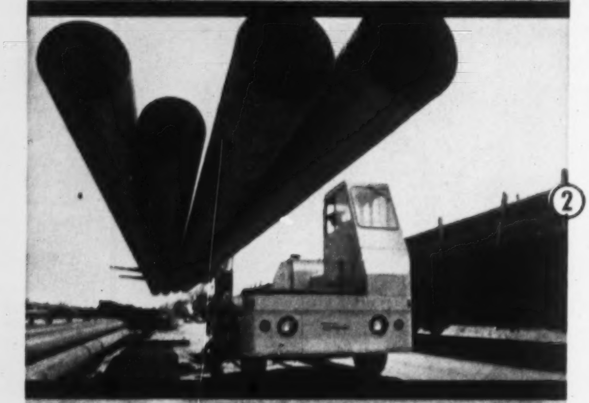

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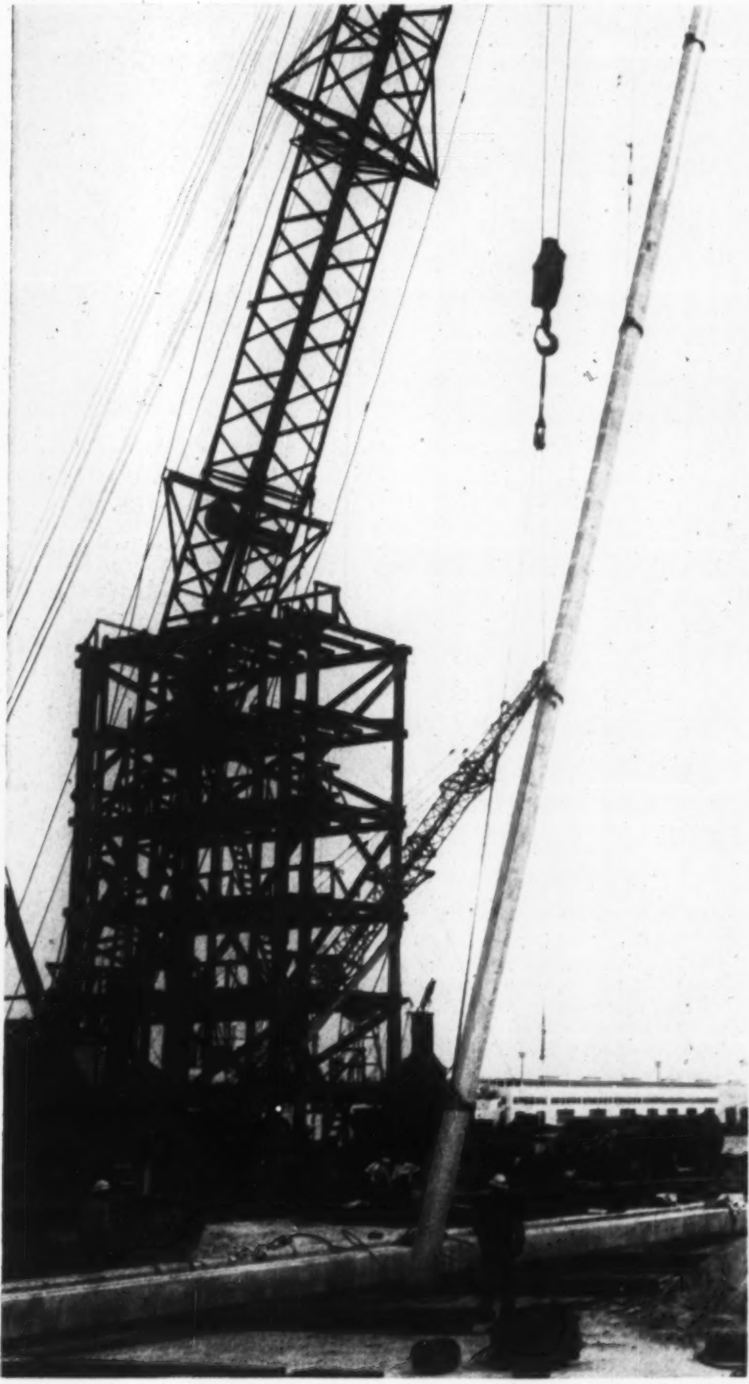
Driving Tests Show . . .

Prestressed Piles Will Take More Punishment



PRESTRESSED CONCRETE PILE is lifted for a driving test at Long Beach, Calif. Purpose was to investigate distress that might result from heavy driving of both prestressed concrete piles and precast, reinforced concrete piles.

Recent tests made at Long Beach, Calif., showed that heavy driving, which would cause noticeable distress to ordinary reinforced concrete piles, resulted in no significant damage to prestressed concrete piles.

The comparison tests with the prestressed piles were conducted in conjunction with a testing program to determine the dynamic stresses induced into conventional non-prestressed piles during handling and driving. The tests were conducted under the joint auspices of The Port of Long Beach and the U. S. Naval Civil Engineering Research and Evaluation Laboratory, Port Hueneme, Calif.

As far as The Port of Long Beach is concerned the testing was conducted both to accumulate long-range design information and as a guide for wharf projects in the immediate future. The Port engineers are looking forward to the economic use of more efficient building materials and processes such as represented by prestressed concrete. Past attempts by the Port to utilize prestressed members in wharf construction have been stymied by the lesser cost for more conventional construction of equal strength as revealed by competitive bidding.

The tests were made on five piles; three 18-in. square conventional non-prestressed piles and two 14-in. octagonal prestressed piles. All piles were 80 ft long, the conventional square piles being reinforced with eight #7 bars and the prestressed piles with eleven ⅜-in. dia. prestressing strands. Each of the conventional square piles was instrumented by attaching 17 SR4 strain gages at various levels to the corner reinforcing bars. By the use of extension cables the internal strains were permanently recorded by an oscillograph on the adjacent wharf.

The piles were driven by a hammer delivering approximately 18,000 ft-lb of energy per blow at the rate of 100 blows per minute. Four of the five piles were driven initially to 10, 12, and 20 blows per inch resistance respectively, and then at intervals to permit underwater inspection by a diver. The fifth, a prestressed pile, was driven continuously for 14 min. receiving 1313 blows and reaching a resistance of almost 100 blows per inch. The diver could find no damage to the pile due to this very hard driving. The driving was stopped because of the length of the leads and the fear

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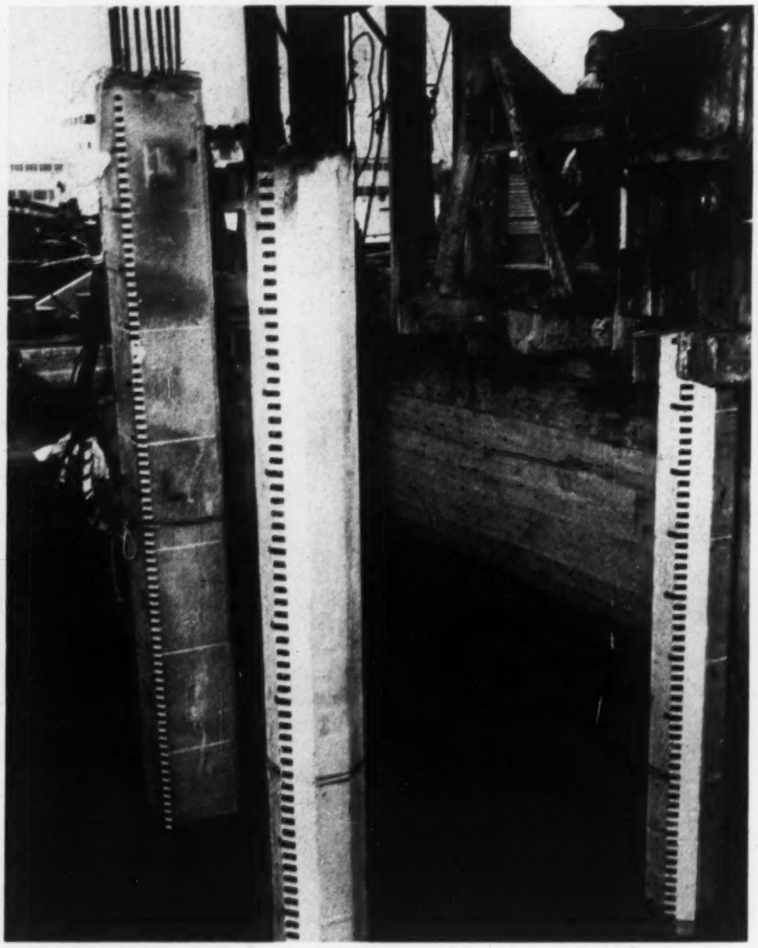


CONCRETE TEST PILES after driving. Prestressed piles (center and right) were driven to 398 and 100 blows per inch resistance. Precast, reinforced pile (left) reached 140 blows per inch resistance. Cables extending from left pile are connected to embedded strain gages.

of damage to the hammer. With the exception of the fifth pile, all piles received in the neighborhood of 2000 total blows.

The maximum resistance attained for the three conventional non-prestressed piles varied from 102 to 140 blows per inch. All three of these piles exhibited gross cracking or spalling below the water line at the end of the tests. One of the prestressed piles was driven to a resistance of 398 blows per inch with no damage apparent.

All piles were driven in 23 ft of water into soil that consisted of 30 ft of quarry waste rock (3-in. maximum size) on top of sand and silt.

All of the pile driving was much harder than normal construction operations would require. And although the conventional reinforced piles did show distress under the heavy driving, they were apparently in satisfactory condition at a point during driving where normal adequate bearing would have permitted stopping the driving.

The furnishing of the conventional piles and pile driving was by the Guy F. Atkinson Co. in coordination with a wharf project presently in progress. The prestressed piles were furnished by Ben C. Gerwick, Inc., from its Petaluma, Calif., casting yard.

EJC to Coordinate 2nd Nuclear Congress

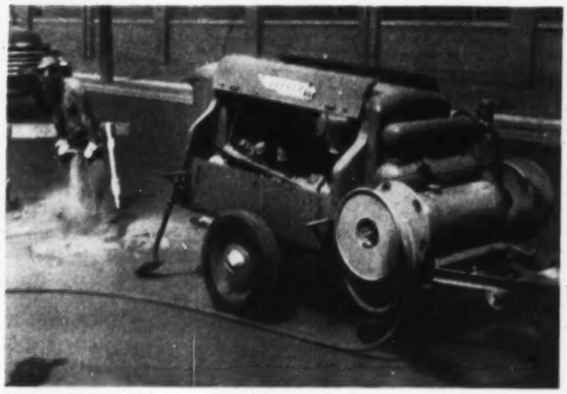
Engineers Joint Council will hold a Second Nuclear Engineering and Science Congress and accompanying Atomic Exposition. It will be in Philadelphia's Convention Hall March 11-15, 1957.

EJC will coordinate this congress just as it did the first one in Cleveland last December. Nineteen engineering and scientific groups already have indicated they will participate.

DRIVING AND EXTRACTING SHEETING WITH 1200 CFM OF JAEGER AIR:

To lay a 6′6″ sewer line in Mount Royal, Quebec, Spino Construction and Equipment Ltd. sheeted more than 2000′ of trench 30′ deep. An average of 100 piles per day were driven through asphalt and clay by 9B3 hammer operated by Jaeger "600" Rotary compressor. A second Jaeger "600" Rotary operated the E-4 extractor.

"Smooth as steam" with Jaeger 600 Rotaries



A JAEGER "600" direct connected to a big pile hammer is a striking demonstration of how this modern rotary compressor holds pressure constant under extreme fluctuations of demand. Never before have a compressor unit and its engine been so instantly and closely regulated. Speed modulation is smoothly stepless over the entire operating range. Your Jaeger rotary is also more efficient under all loads, producing its full rated 600 cfm at only 1650 rpm full load speed compared with 1750 to 1800 rpm required by other rotaries.

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Steel Trussed Arches Span 360 Ft in Hangar

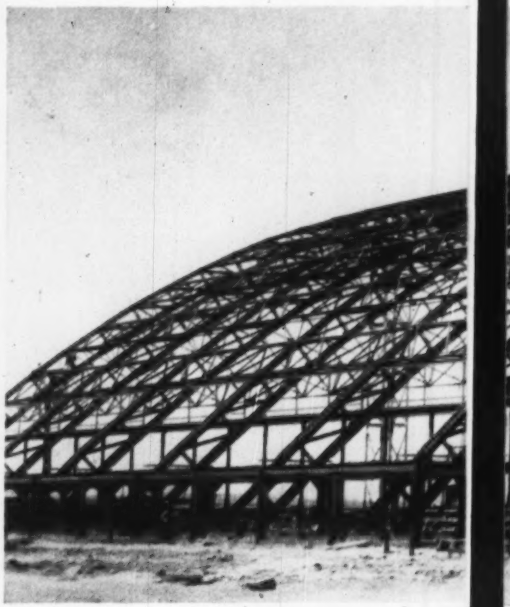
A 360-ft-span steel trussed arch hangar—longest such span west of the Mississippi—is nearing completion at Edwards Air Force Base in the Mojave Desert north of Los Angeles.

The 400-ft-long structure has 6-ft-deep trussed arches spaced on 40-ft centers. With 55-ft-high sliding doors, a clear opening of 50 ft is available for almost a full 300-ft width. Tail doors in the center provide an additional 25 ft of height for a 50-ft width. Height to the center of the arch is 94 ft.

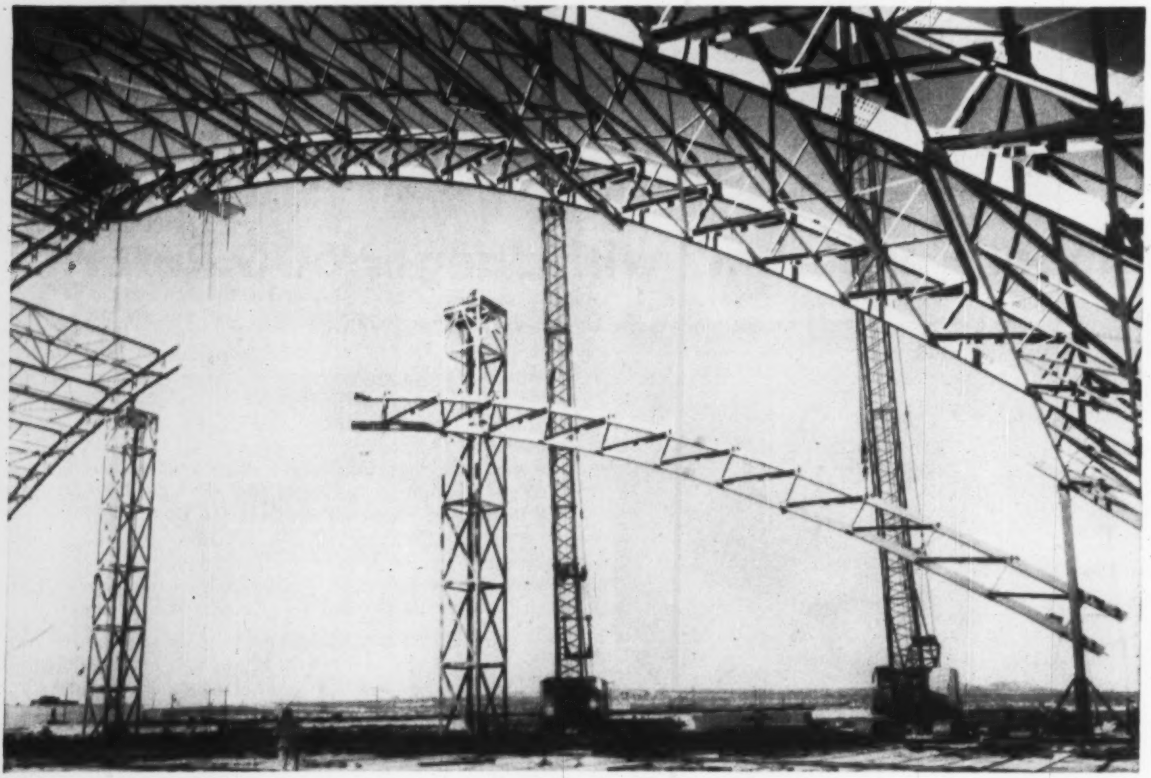
Edwards Air Force Base is the flight test center of the Air Force's Air Research & Development Command. It has as its mission the testing of experimental aircraft, power plants, components and related equipment aimed at maintaining qualitative superiority of Air Force material. An important intended function of the new hangar is static structural tests on aircraft, including weight and balance. For this purpose, weighing equipment is provided in the hangar floor—and this had an effect on selection of the steel trussed arch design.

The hangar is designed for a live load of 20 psf and a wind load of 20 psf on the projected height, divided into 12 psf positive pressure on the windward side and 8 psf negative pressure on the leeward side. Besides this, the frame will mount 5-ton monorail cranes on each side and a 10-ton bridge crane centered in the hangar and serving three end bays. Seismic forces equal to 13.3% of the dead load were considered in design. The end doors were also designed for wind.

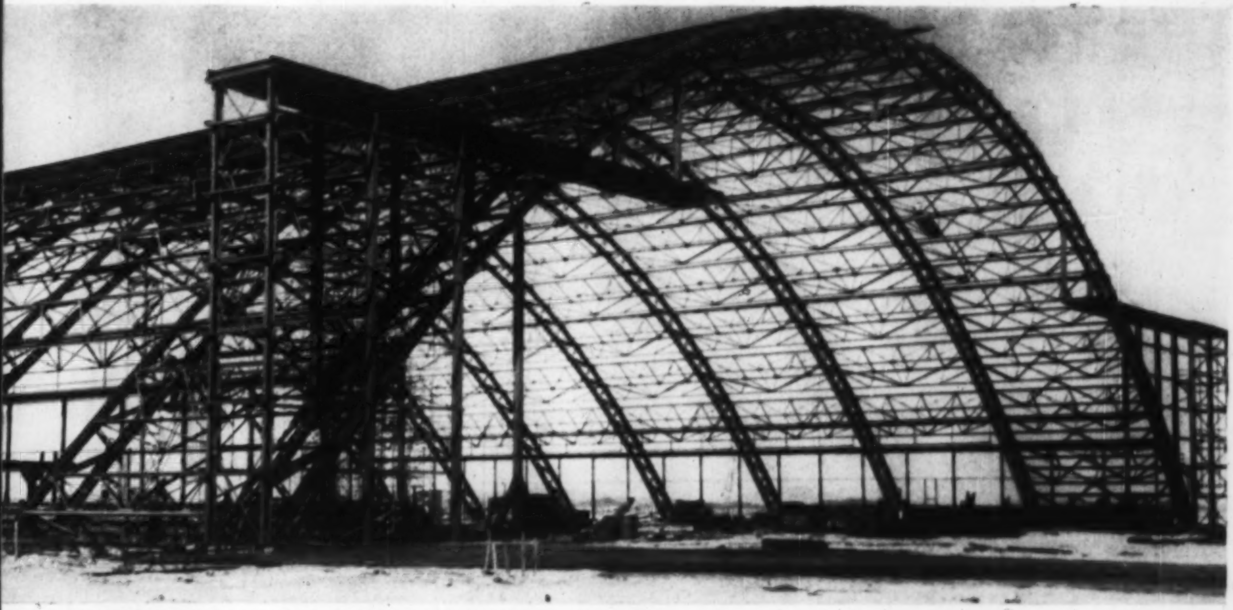
Early planning of the hangar followed as a prototype the 300-ft-span steel girder arch hangars at Idlewild Airport in New York (ENR May 25, 1950, p. 40). The Idlewild hangars have three-hinged plate girder arches on 24-ft centers, mounted on 25-ft-high concrete buttresses. Designers of the Edwards hangar believe their design saved some $350,000 over the cost of a similar Idlewild hangar.



The architect-engineer—Van Dyke and Barnes of Los Angeles—considered several alternate designs for the Ed-



CRANES LIFT arch section during erection. Arch is assembled in six sections, with temporary support by falsework towers. Jacks on towers aid final connection. Section being lifted above is 120 ft long.



THESE THREE-HINGED TRUSSED ARCHES spaced on 40-ft centers, were considered more economical than other framing designs for this new Edwards Air Force Base flight test hangar. Lateral bracing also is trussed.

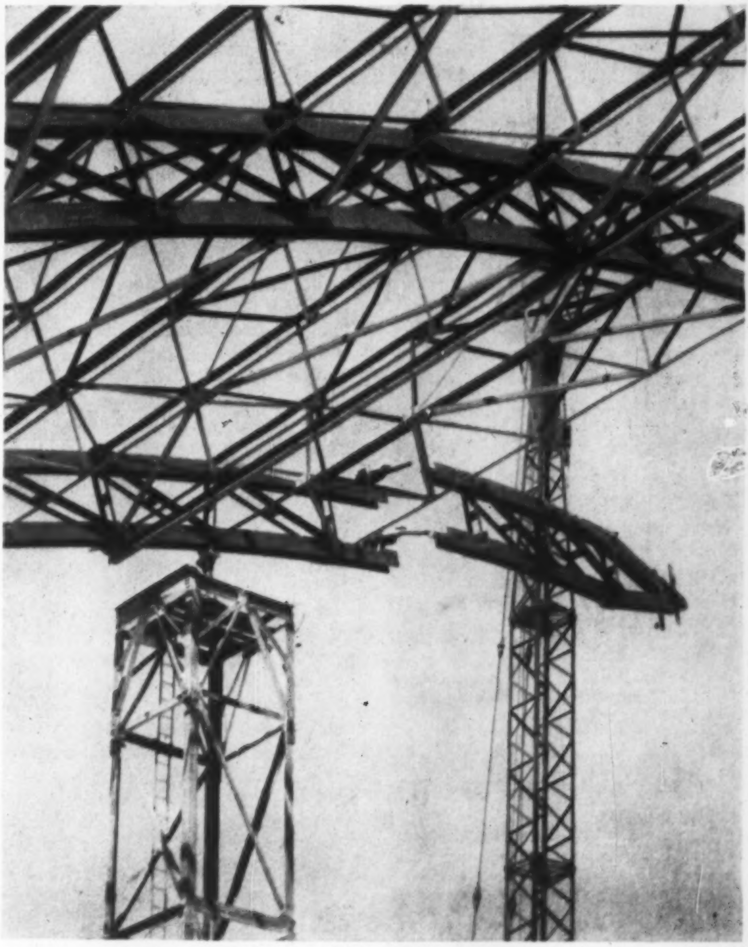
wards hangar. These were three-hinged trussed steel arches with trusses at 40-ft centers, three-hinged trussed steel arches with trusses at 20-ft centers, three-hinged plate girder arches at 40-ft centers and at 20-ft centers, and thin-shell ribbed concrete arches with ribs at 30-ft centers. Design analyses and cost estimates led to adoption of the truss steel arch spaced at 40-ft centers.

• Economy emphasized in the design—Besides being the most economical type, the designers considered it to present greater stiffness for erection. And for usable areas near the ends of the arch, the arch could go unbraced for 20 ft.

As both chords of such an arch are compression members, they must be braced. And such bracing can be provided by rolled shape purlins knee-braced to the chords. But the designers figured that if the purlins are knee-braced they might as well be trussed, and if they are trussed they might as well span 40 ft as 20. This provides fewer field connection and less steel weight.

The designers also considered it more economical to bring the arches to the ground rather than set them on buttresses. Buttresses, they concluded, are, in reality, only a continuation of the arch and would provide fixed permanent barriers to flexibility of usable space.

Three-hinged arches were considered by the designers to be more reliable than two-hinged arches where soil conditions might permit possible settlement. The large weighing scale



ARCH SECTION is swung into place for final step for half of one truss. Top and bottom chord members are formed of 14-in.-wide flange shapes.

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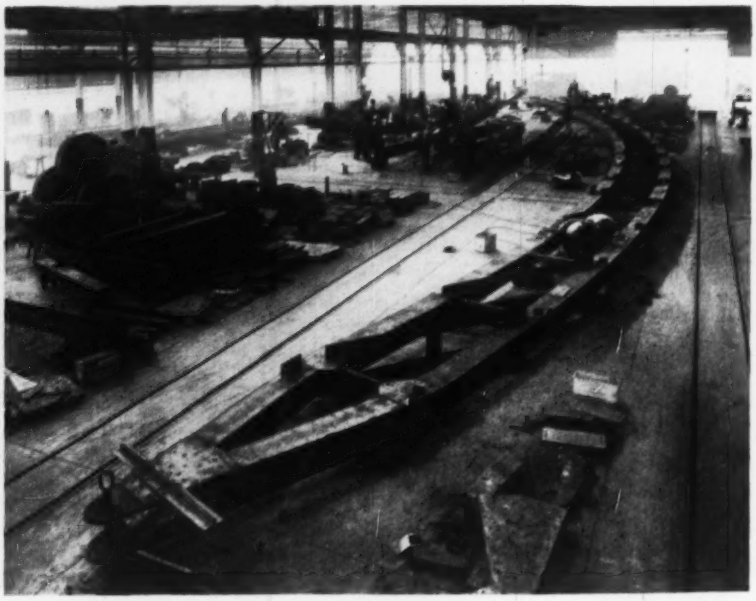
. . . Arches went up in six sections



SHOP ASSEMBLY helped in meeting close tolerance. After rivet holes were bored and reamed, the trusses were disassembled for shipment to the erection site.

pit, which interferes with tie rods, might also lead to some lateral movement. And such movement is more easily accommodated by a three-hinged arch than by a two-hinged arch.

• Steel chords bent cold—The 11 arches supporting the roof each form an inverted catenary curve. Top and bottom chords are 14-in., 119-lb, wide-flange sections bent in the weak direction to desired curvature on a horizontal hydraulic press. One basic section is used throughout, with web plates added to the wide-flange beams as required to build up the area.

Flanges provide double gage lines on each side for connecting the truss web members. These connecting members are generally single angles designed to carry all stresses without lacing or battens. For most of the arch, no gusset plates were required for connecting webs to chords. Chords are spaced 5 ft center to center.

One advantage of this type curved chord arch is that it permits splices at substantial distances rather than at every panel point as in a segmented arch.

The structural steel subcontractor—Bethlehem Pacific Coast Steel Corp.—fabricated the trusses at its new Torrance, Calif., plant. Tolerance for cold bending of the chord members was a ⅜-in. variation from the curve between any panel point. And no panel point could be more than 1 in. off true curve in the entire arch before erection. The trusses were assembled in half-arch sections in the shop for boring and reaming. Then they were disassembled for transport to the job.

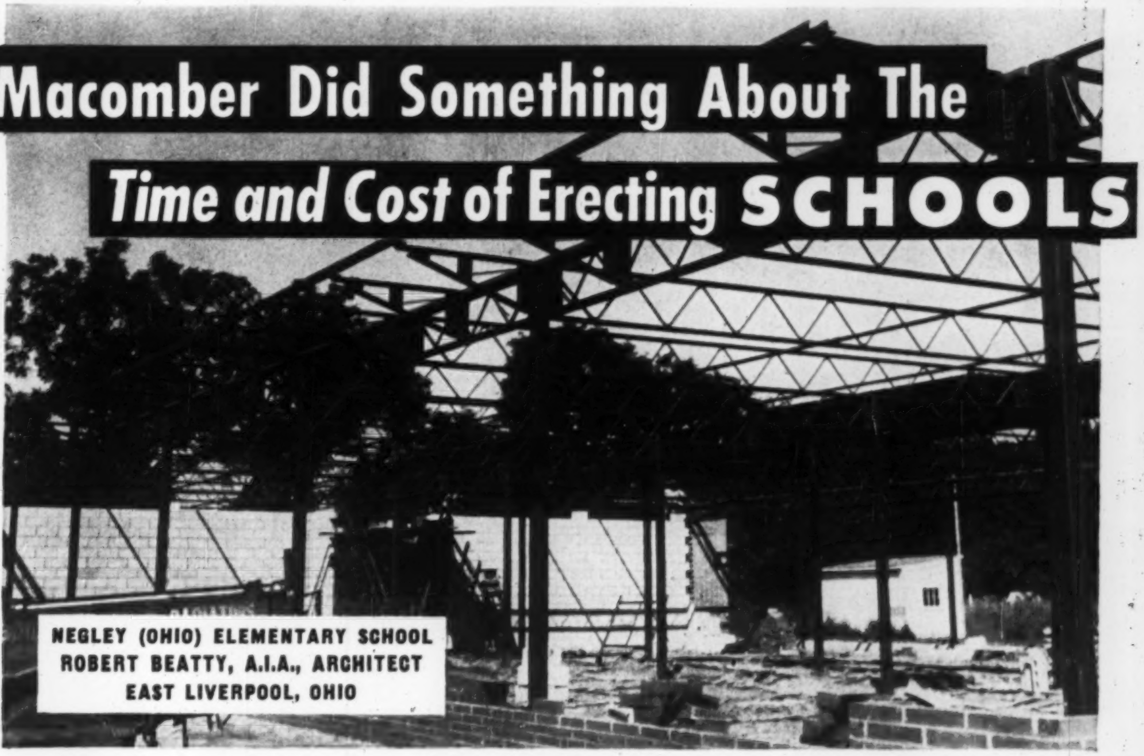
At the Air Force base, the trusses were erected in six sections. First a short, end section was installed at each footing. Then longer sections measuring some 120 ft were positioned by two cranes. One end was attached to the previously placed footing section and the other end rested on a falsework tower. Final section was a short piece on each half truss that would be pin-connected at mid-span. Jacks on the falsework towers helped in mating the steel trusses.

For weight saving, the hangar roof is composed of V-beam type asbestos-protected sheet-steel roof deck. For protection against desert heat, 2-in.-thick glass-fiber insulation was applied to the underside of the deck prior to erection.

The hangar is designed for 34-ft-wide, two-story lean-to structures along each side. The current construction includes only one lean-to, and it is only one story high.

The hangar is a project of the Los Angeles District Corps of Engineers, Col. Arthur H. Frye, Jr., district engineer. Resident engineer at Edwards is George Davis. The construction is under the cognizance of Col. Edwin M. Eads, Air Force Installations Representative, South Pacific Region. General contractor holding a $2-million contract is Stolte, Inc.

Macomber Did Something About The *Time and Cost* of Erecting SCHOOLS



NEGLEY (OHIO) ELEMENTARY SCHOOL
ROBERT BEATTY, A.I.A., ARCHITECT
EAST LIVERPOOL, OHIO

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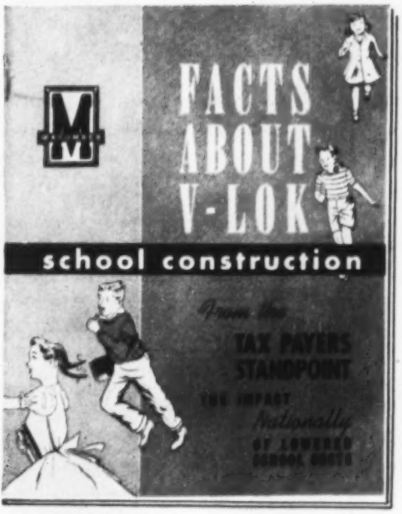

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From the
TAX PAYERS STANDPOINT
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Architect Glen Drew, Poplar Bluff, Missouri, uses Fenestra Hollow Metal Door-Frame-Hardware Units for custom quality at stock door costs. O'Neal School, Poplar Bluff, Missouri, has 42 Fenestra Flush Doors. *Contractor:* George H. Gassman Construction Co., Poplar Bluff, Missouri.

Fenestra
SCHOOL DESIGN NEWS

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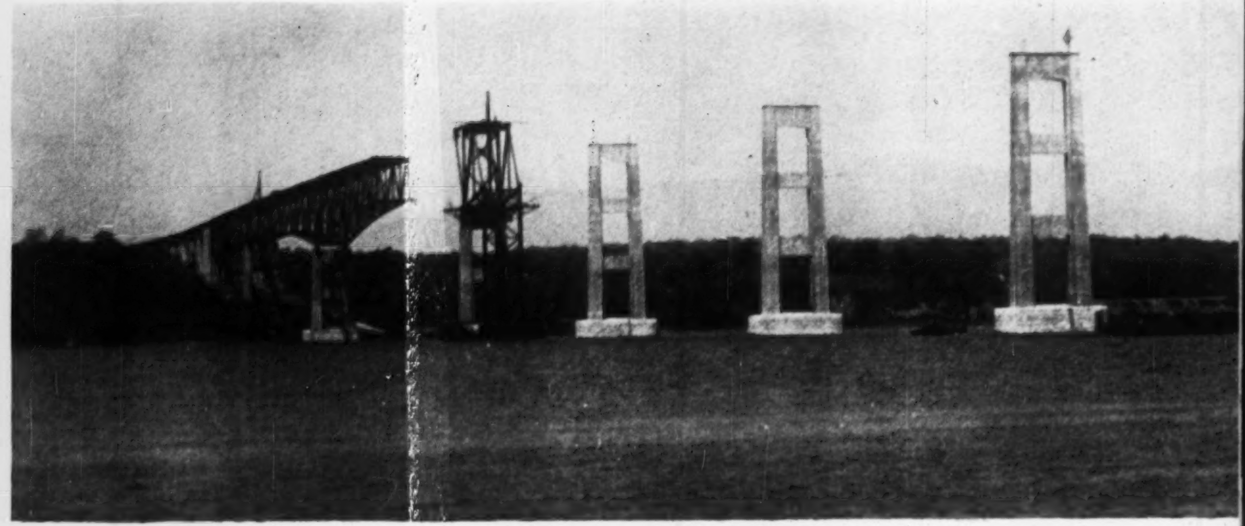


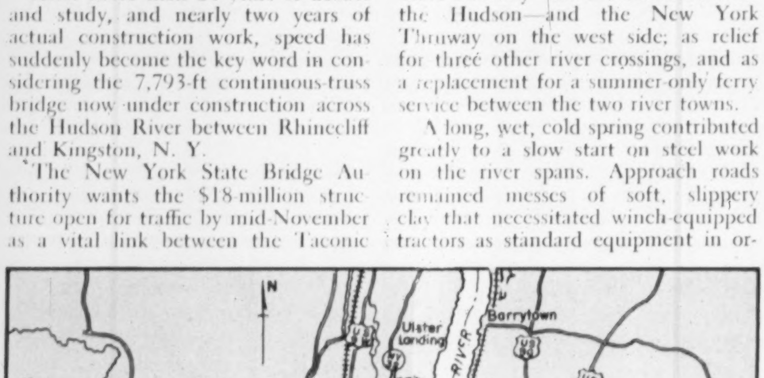
Erection Speed Governs Newest Hudson

Erection of falsework bent in shallow area near western side of Kingston-Rhinecliff Bridge is key step in completing 800-ft-long continuous-truss span. Similar bent on east side of 4,400-ft-long structure has made possible use of four travelers as steel erectors work against time.

After more than 20 years of debate and study, and nearly two years of actual construction work, speed has suddenly become the key word in considering the 7,793-ft continuous-truss bridge now under construction across the Hudson River between Rhinecliff and Kingston, N. Y.

The New York State Bridge Authority wants the $18-million structure open for traffic by mid-November as a vital link between the Taconic State Parkway—on the eastern side of the Hudson—and the New York Thruway on the west side; as relief for three other river crossings, and as a replacement for a summer-only ferry service between the two river towns.

A long, wet, cold spring contributed greatly to a slow start on steel work on the river spans. Approach roads remained messes of soft, slippery clay that necessitated winch-equipped tractors as standard equipment in order to get material trucks in and out of construction roads; snow and cold hampered erection work; the river carried heavy ice floes long after normal break-up.



New bridge—seventh major vehicular crossing of the river—will provide access between New York Thruway and Taconic State Parkway.

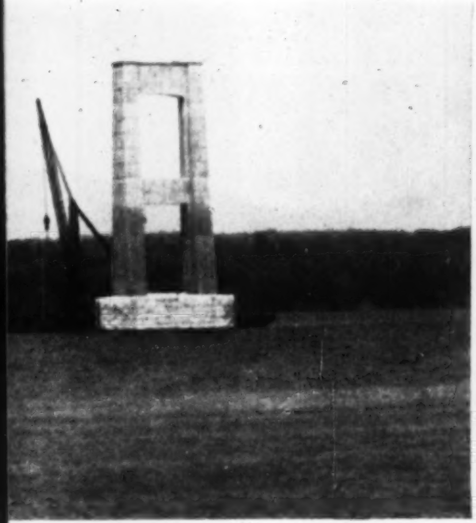
But now Harris Structural Steel Co.—general superstructure contractor—has finished the last of four travelers to rush the steel across the river, and has already completed steel erection on the long approach sections.

• Needed facility – Bridging New York's broad, sometimes deep, always tractable Hudson River is getting to be an old story for construction men.

Six great vehicular structures now span the 150-odd miles of river from the majestic George Washington Bridge in New York City to the Albany-Rensselaer drawspan. Three of these–the Washington, Bear Mountain and Mid-Hudson–are suspension structures, among the world's longest; two–the New York Thruway's three-mile-long-Tappan Zee bridge, and the Rip Van Winkle Bridge at Hudson–are cantilever trusses.

The Kingston-Rhinecliff Bridge–to become the seventh major vehicular crossing–will be a continuous truss deck structure, and will contain two 800-ft spans with arched bottom chords, over the two river channels at the site.

A bridge at the site has been under discussion for more than 20 years, to replace a ferry service that dates back to the days of Dutch settlement of the Hudson Valley in the 17th century. Almost all designs prepared (and argued over) in initial discussions called



Bridge

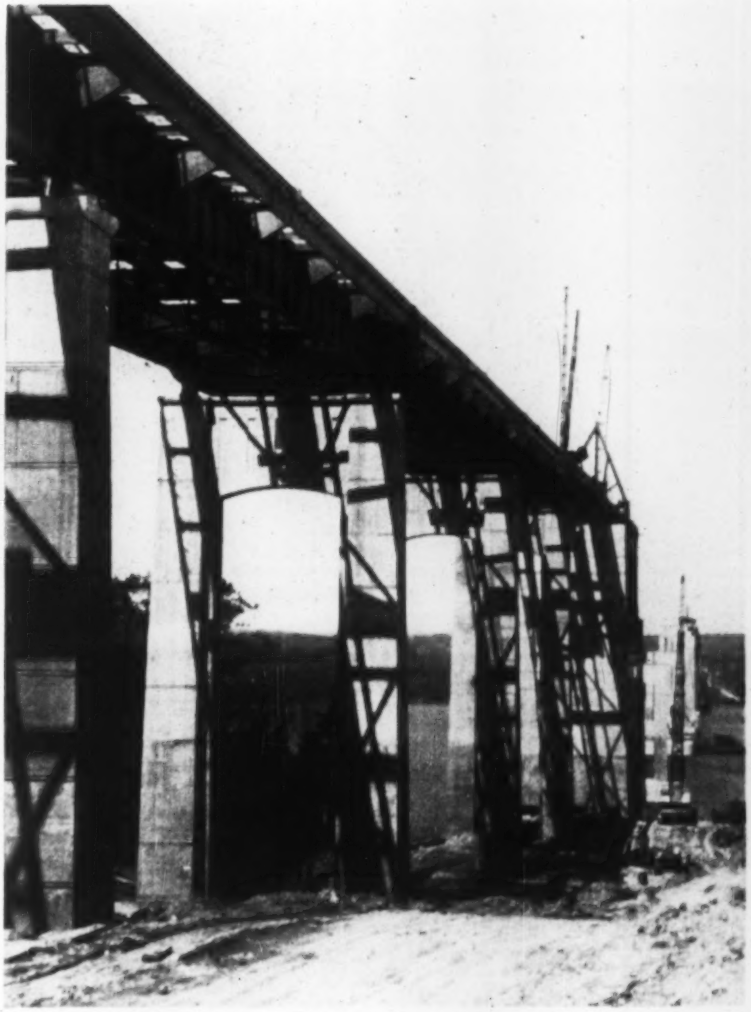
for a suspension structure—and in fact the first structure approved by the state (ENR July 21, 1949, p. 27) contemplated a suspension bridge at Kingston Point, about three miles below the present site).

• **Engineering studies**—However, engineering studies by the bridge authority's consultants — D. B. Steinman, New York—developed a number of facts that led to the conclusion that the continuous design would be most practical for the site.

The Hudson River is more than 4,400 ft wide at the point selected by the state for the bridge, split into two channels by a shoal about 1,700 ft wide nearly in midstream. Subsoil exploration showed bedrock to vary in depth from 55 ft to 140 ft below mean high water. Thus there would be no problem in founding river piers, and approach spans could be founded on rock as it shelves steeply upward to high ground on either side of the stream.

Heavily used tracks of the New York Central Railroad line are built on shelves of rock and fill on either bank of the river, and then the rock rises swiftly on the east side to an elevation of 130 ft about a half-mile back from the water's edge. The rock ledge is more precipitous on the west side.

In order to satisfy the vertical and horizontal clearance requirements of the Corps of Engineers, the bridge would have to have 135-ft vertical clearance above mean high water, and two channel spans of 800 ft in width.



TRAVELER ON EAST SIDE of river is already in use, and has erected approach steelwork of heavy girders.

Grade for the 36-ft roadway on the structure will be 4% maximum. Pavement and two 2-ft emergency walkways are to be constructed of reinforced concrete.

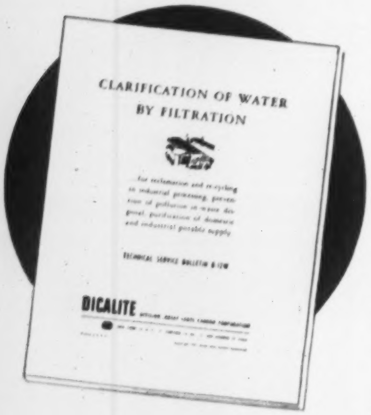
Work on constructing the total of 30 piers (abutment to abutment) called for in the design began late in July, 1954, and Merritt-Chapman & Scott had completed its work sufficiently by February of 1956 to permit Harris to begin moving its equipment onto the site.

The four river piers that carry the cantilever spans over the two channels, and the river pier closest inshore on the east side were built as reinforced concrete open-dredged caissons, carried down through silt to bedrock; two of the three piers on the shoal area stand on piles driven to rock, and the third on piles driven to bearing. All other piers are founded directly on rock.

• **Steel starts**—For the steel erector, then, the job presented this requirement:

Starting from the west, the approach viaduct contains 12 plate-girder spans, each 127 ft center-to-center of piers. River spans are: One 300-ft; an 800-ft span; a 760-ft span; four 500-ft truss spans across the shoal area; the second 800-ft span; a 500-ft and a 300-ft truss span; and 7 girder spans of 151 ft each to the east abutment.

But with the long-clinging winter keeping heavy ice floes in the river, and the thick, greasy mud of the construction roads holding back truck transport of steel from a railroad siding ten miles away, Harris' two superintendents—Ed E. Lambert on the east side and Bob Smith on the west—concentrated on getting the approach steel erected on the shore ends. These consisted of fabricated steel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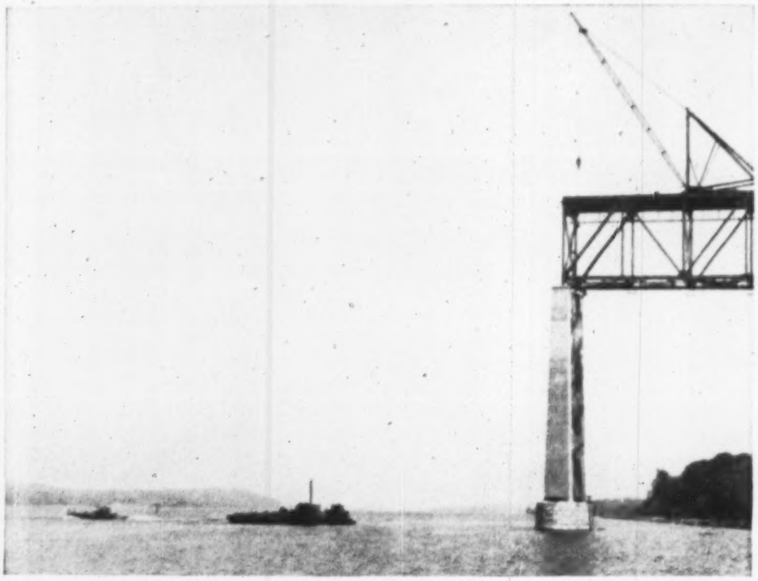

BARGE CLUSTER marks location of eastside falsework bent. Four travelers will be used in final erection.

girders, up to 150 ft in length, and with webs varying 9 to 11 ft. At the same time, a skid-mounted traveler that can carry either a 92-ft or a 129-ft boom was set up on the east side. With the 92-ft boom, this traveler can lift a 75-ton load.

• Moving fast—But with better weather early in May, steel erection started to move fast, and is continuing at a rapid pace. It began to move even faster when the last of four travelers was erected and operating.

Construction procedure is this:

In order to eliminate the need for falsework in the river channels, and, in fact, as much falsework as possible, the contractor first stepped a Chicago boom on the river side of the pier that borders the channel, using the spandrel of the pier itself as a support for the boom.

TRAVELER completes span from bluff to first river pier.

Using this boom, he then erected a falsework bent (on previously driven pile foundations) and a working platform between the bent and the pier. The boom is then jumped to the working platform, and proceeds to erect a stiffleg derrick. The derrick then erects the rest of the falsework, and the first of two travelers (at each side of the river). The first traveler then erects a second traveler above it.

The two travelers on each side of the structure now work in opposite directions to complete the structure.

Steel is bolted and pinned on setting, for follow-up riveting later.

• Paving and approaches—The roughly two miles of approach roads—ultimately to be a four-lane divided highway—on the east side of the river are already graded and ready for paving under separate contracts handled by the state department of public works for the bridge authority. On the eastern approach, only one 24-ft roadway will be completed at this time.

Paving of the bridge structure itself will be handled by Horn Construction Co., Inc., of New York, under a subcontract with Harris.

D. B. Steinman designed and is supervising construction, with W. E. Joyce as project engineer, R. H. Boynton in charge of substructure design, C. H. Gronquist in charge of superstructure design and Milton O. Elkow is resident engineer.

Robert Hoe is chairman of the New York State Bridge Authority.

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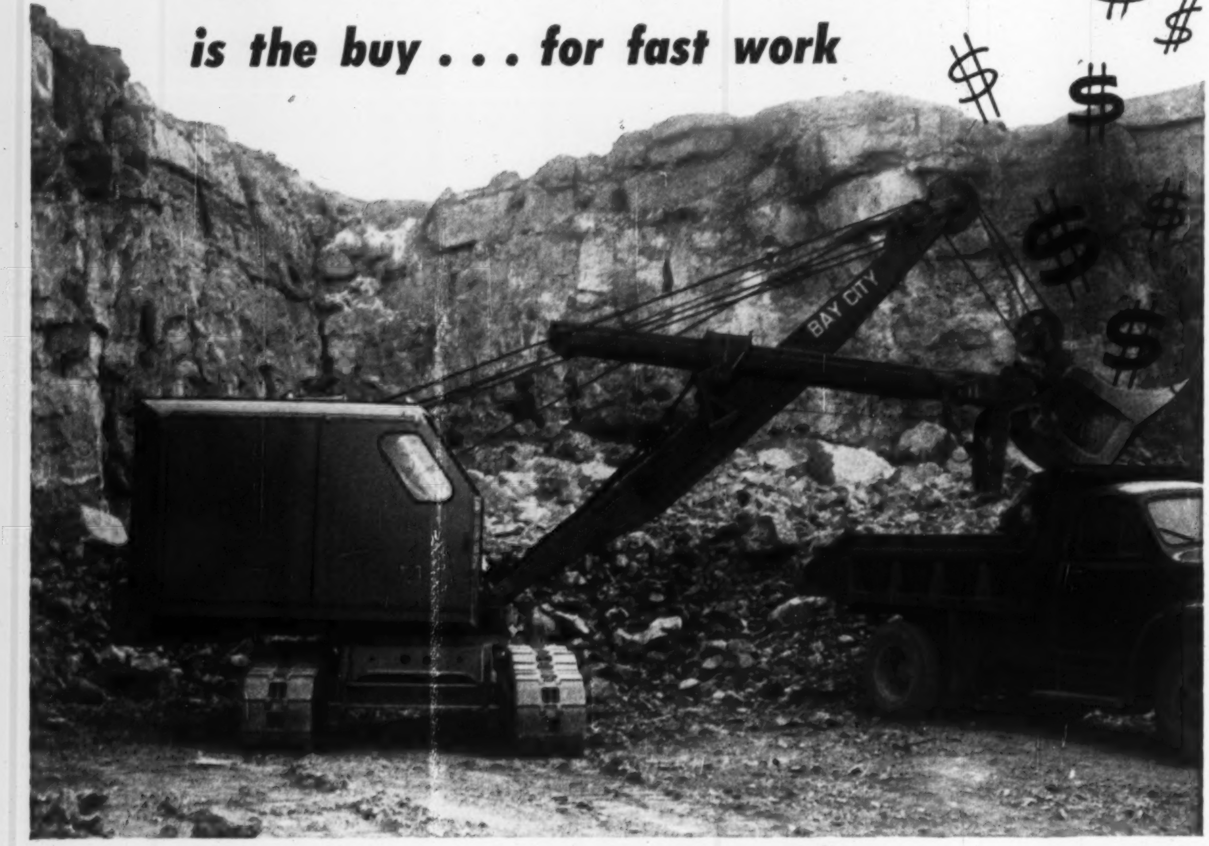

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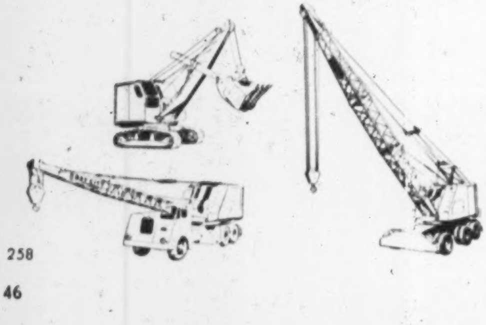

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Crane-Gantry Team Sets Silo Hoppers

When company engineers planned the storage silos for Lehigh Portland Cement Co.'s $20-million plant now under construction in Union Bridge, Md., they worked out a neat scheme to speed loading of railroad cars. And they also handed the contractor, Consolidated Engineering Co., Baltimore, an exercise in materials handling.

For fast loading, they decided to build the 32-ft-dia 77-ft-high silos on top of a 48-ft-high platform so that cars could roll underneath to be loaded from hoppers, one at the base of each silo. Having thus dispensed with the usual loading system, in which railroad cars are drawn up on either side of a double row of silos for side loading, they then elected to build the 32 silos in two 4x4 clusters on a pair of 140-ft-square platforms.

The contractor's problem then lay in installing the hoppers. Not that it would be particularly difficult to hoist the 12-ft-high 10-ton funnels to the top of the platform walls. The drawback, according to C. A. Driver, project manager on the job, was that it would take cranes with 200-ft booms and 65-ton capacity to set the hoppers for the four silos at the center of each cluster—an expensive operation.

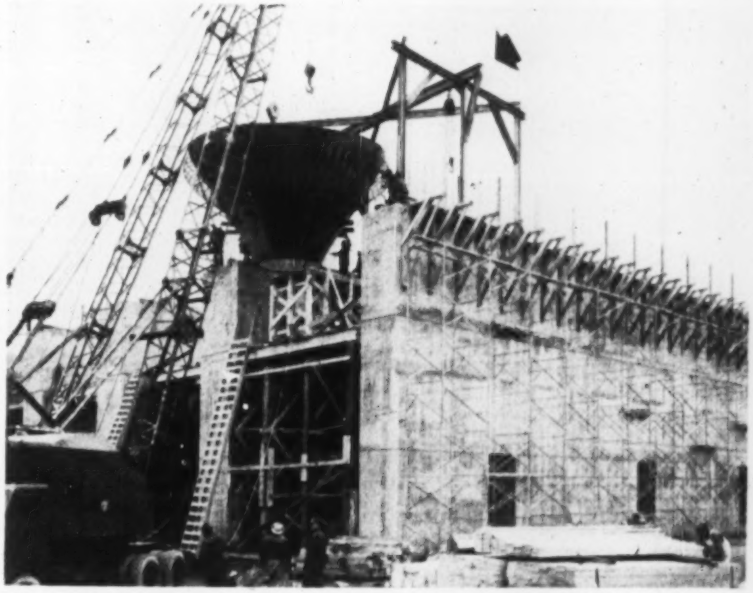
To solve the problem more economically, Consolidated built a gantry out of steel shapes and installed it on heavy roller-bearing wheels in steel-channel tracks on top of the platform walls. The hoppers were raised to the gantry by ground-based cranes, the gantry was trundled along the walls and the hoppers were lowered into place by means of chain falls. The operation went fast. As many as four hoppers were placed in one afternoon. Driver estimated that the gantry cut erection time for the hoppers by 80%. After the hoppers were set, the platform top—an 8-ft-thick reinforced concrete slab—was cast, encasing the top 8 ft of the hoppers.

In casting the concrete silo walls, Consolidated carved another sizable chunk off construction costs by using a hydraulic jacking system to raise the slip forms and work platform. Only 6 men were required to man the jacks in contrast to the 54-man crew that would have been necessary for manually operated screw jacks.

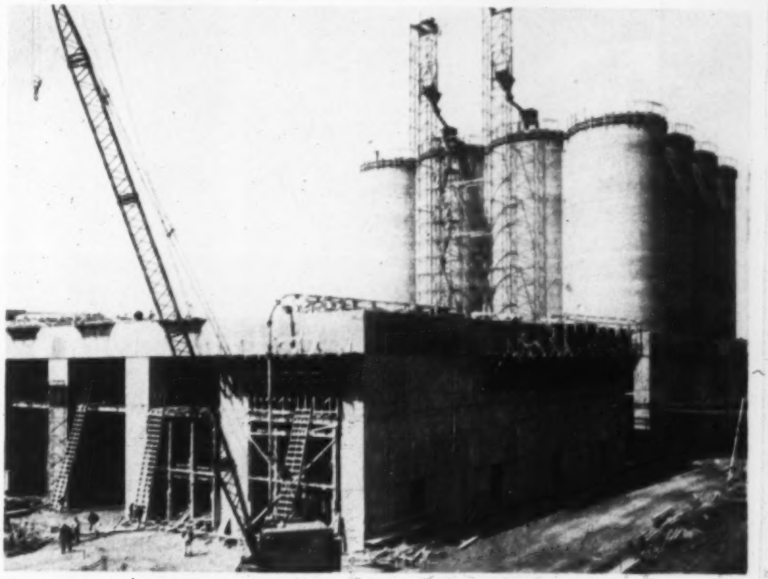
The first 16 silos went up in 4½ days, the second group in 5 days. Driver estimates the saving on labor alone was $5,000. A further saving was effected by retrieving the jack rods after reaching the top of the walls.

The trick that made the rods recoverable was a 3½-ft length of thin-wall pipe, attached to the bottom of each jack. This prevented contact between fresh concrete and the rod. And before a firm bond could develop between pipe and concrete, the jack was pumped up the rod to the next casting position. The pipe trailed behind, leaving a tunnel in the concrete slightly larger than the rod. When the crew reached the top of a wall, they withdrew the rod sections, which had been spliced end to end by means of tapped holes and threaded studs.

Consolidated Engineering Co., designed and built the silos on foundations designed by Spencer, White & Prentis, Inc., of New York.



10-ton hopper is handed up by cranes to a rolling gantry (arrow), which set the huge cement-loading funnels in spots cranes could not reach.



Cement-storage silos in background (16 of them, 32-ft dia, 77-ft height) were cast in 4½ days by crew using hydraulic jacks to raise slip forms and work platform. Next 16 went up in 5 days on platform in foreground.

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Job Facts:

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New Products

New Sickle Bar Mower For Faster Land Clearing

Faster and easier cutting of high grass, weeds and brush is said to be possible with the new Model H Champion sickle bar mower made by Jari Products.

A special feature is a 22% lighter cutter bar and increased horsepower. The lightweight aluminum engine reduces the overall weight by 12 lbs, and delivers 2.75 hp.

This greater power permits the use of the larger sickle bar, which is said to be 8 in. longer than standard bars and twice the size of many conventional mowers.

The self-propelled Model H Champion is said to be at its best when covering rough, hilly or rocky territory. Cutting height is 1½ in. Jari Products, Inc., 2990 Pillsbury Ave. S., Minneapolis 8, Minn.

General Purpose Floodlight Is Flexible and Lightweight

An improved model of the G. E. L-69 general purpose floodlight, is now on the market.

The manufacturer says that the new lightweight unit, called the L-69A, provides better performance and greater performance and greater flexibility than its predecessor. In addition, the new model produces more light per unit, more beam lumens per watt, and higher uniform beam candlepower than did the L-69.

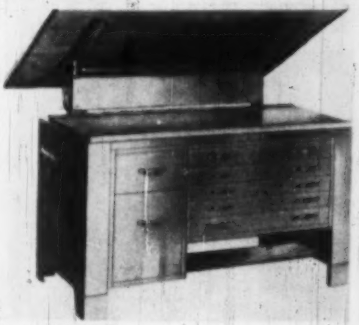
A feature is a new faceted rear reflector whose optical design makes possible projection of more lumens per watt than comparable lights, according to company engineers. General Electric Co., Outdoor Lighting Dept., Hendersonville, North Carolina.

Direct-Reading Digital Flow Indicator Developed

Fischer & Porter Co. has developed a new direct-reading digital indicator designed primarily for use with the company's turbine flow-meters. The new unit features a completely digital system, operating from the frequency output of the turbine meter, which takes advantage of the linearity and repeatability inherent in the turbine meter primary.

The following features are claimed to provide high accuracy and operating convenience: in-line, illuminated, digital indication; direct reading of flow, with manual correction for specific gravity which may be obtained as an optional feature; integrated flow rate; a frequency octupler which provides information at many times the output frequency of the primary; automatic, frequency-controlled range switching, and manual specific gravity adjustment.

In addition to straight indication, the digital information stored in the indicator can be fed directly to complete data handling and automation systems. Fischer & Porter Co., Hatboro, Pa.



Height and Tilt Are Quick With New Drafting Table

Called May-O-Matic, a new line of drafting tables feature instant table-height and top-tilt adjustments. A foot lever releases a brake to provide up and down movements and a hand lever permits tilting the top to any angle desired. The range of height adjustments is 9 in.

The tables have an all-metal base and a top of basswood with metal edges. Tables are available in several combinations: with only a reference top (standard equipment on all

(New Products continued on page 50)

Wooldridge Introduces 26-Yd Scraper

With a heaped capacity of 26 cu yd, the new Wooldridge Cobra Quad is claimed by its manufacturer to be the highest capacity three-axle type self-propelled scraper now on the market.

The machine consists of a 300-hp diesel-powered four-wheel tractor with a two-wheel scraper attached through a universal ball-and-socket yoke connection. The unit is rated at 26 cu yd heaped and 20 cu yd struck, with load capacities of 56,000 lb.

In order to obtain smoother operation, the machine is equipped with a fluid coupling drive; air-actuated clutch, transmission and winch; hydraulic steering.

The stability of the four-wheel tractor design is said to offer maximum ease of operation, safety and comfort. Wooldridge Manufacturing Division, Continental Copper Steel Industries, Inc., Sunnyvale, California.

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types); with an attached 9¼ x 11¾-in. book shelf; with auxiliary drawer units and a book shelf.

The top sizes are available varying from 37½ x 48 in. to 42 x 84 in. The table is designed so that certain sizes of the Mayline Plan File can be installed below it. Mayline Co., 619 N. Commerce St., Sheboygan, Wis.

Prefab Trussed Rafter Folds Into Compact Shipping Bundle

A design for triangular, collapsible, wood trussed rafters incorporates a feature permitting partly assembled rafters to be folded for shipment with all members parallel. The jack-knifed assembly is an easy-to-stack package 5 in. deep, 14 in. wide and the length of half the top chord.

Job-site assembly consists of splicing the bottom chord at midpoint, connecting the lower end of two long diagonal webs and spiking into place two short diagonal webs. Except for the two spiked diagonals, all members are joined by split ring timber connectors and ½-in. bolts.

Speed at the job is the chief advantage offered by the new design. No sorting of members is necessary. Factory prices range from $180 to $2[illegible]0 per mfbm, including all hardware. The average 28-ft rafter contains 63 fbm. The freight rate for knocked-down rafters applies, according to the manufacturer. The Marsh Co., Ltd., 8035 13th St., Silver Spring, Md.

Special-Purpose Rear Axle For Heavy-Duty Cranes

The first of a line of special-purpose tandem rear axles for rubber-tired cranes is now being offered.

The new axle assemblies are intended primarily for use with crane carriers rated at 30 tons or more lifting capacity. One assembly—the Model 440, designed for cranes of 30- to 50-ton rating—is now in production. A Model 460 for cranes up to 100 tons will be available soon. Industrial Brownhoist Corp., Bay City, Mich.

Heavy-Duty Power Take-off

Twin Disc Clutch has announced the addition of a new model to its SP line of heavy-duty friction power take-offs, the SP-321.

Compact for its capacity, this new take-off is said to handle up to 6,730 lb-ft of torque and transit up to 602 hp at 1,550 rpm. Twin Disc Clutch Co., Racine, Wis.

Split-Mullion Curtain Wall Features Two-Way Windows

Sashes slide horizontally in either direction—passing between split mullions—in a new curtain wall system named "Gridwall". Built of heavy, hollow-extruded aluminum, the system has these advantages; split mullions clamp the sash to form a weather seal; since sashes slide in either direction, windows can be cleaned from the inside; the width of the 1½-in. window frame is not increased by addition of mouldings.

To allow for expansion and contraction, sleeve joints are provided. An additional advantage of the system is its flexibility. The manufacturer states that spandrels can be of almost any material and that any combination of sashes and insulated panels can be used. Glide Windows, Inc., 7463 Varna St., North Hollywood, Calif.

GM Adds 4-Wheel Drive To ½-Through 1-Ton Line

Four-wheel-drive trucks operated by a single shift lever have joined the GMC Truck and Coach Division's full line of trucks.

Six basic models, including pickups, panels, suburban station wagons and stake trucks in the ½-through 1-ton rate range are equipped with the four-wheel drive as regular factory installed production options. The machines are available with horsepower ranging from 130 hp to 180 hp and either 4-speed manual or hydraulic transmissions. GMC Truck and Coach Division, 660 S. Blvd., East, Pontiac, Mich.

(*New Products continued on page 52*)

Champions in their Field

You need plenty on the ball to be a big league champ—and plenty more up your sleeve. Everything depends on the man!

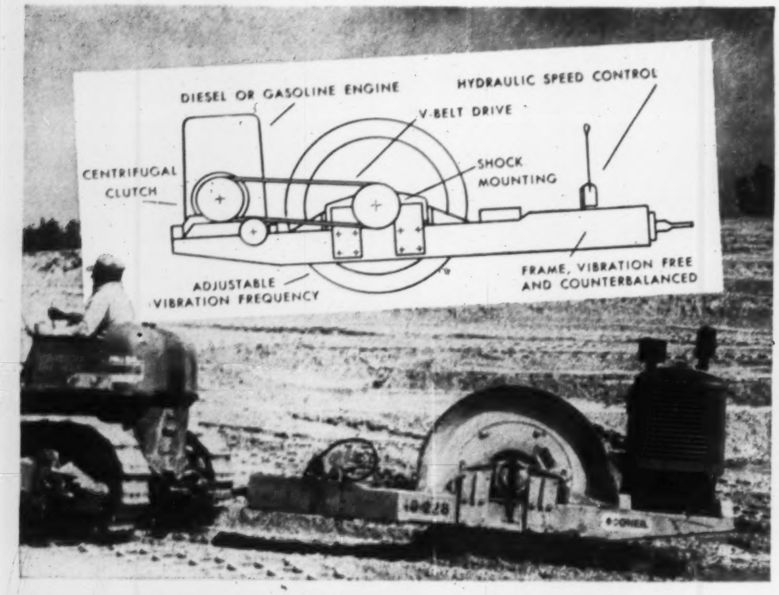
In shovels, it's different. Marion machines can make every operator look like a champ. Built-in qualities make it easy to deliver fast cycles and big daily output.

Why not give your operators the best chance to be champs all season long?

MARION 101-M • 3 Yard Shovel • 54 Ton Crane

Marion Means Business

MARION POWER SHOVEL COMPANY, MARION, OHIO



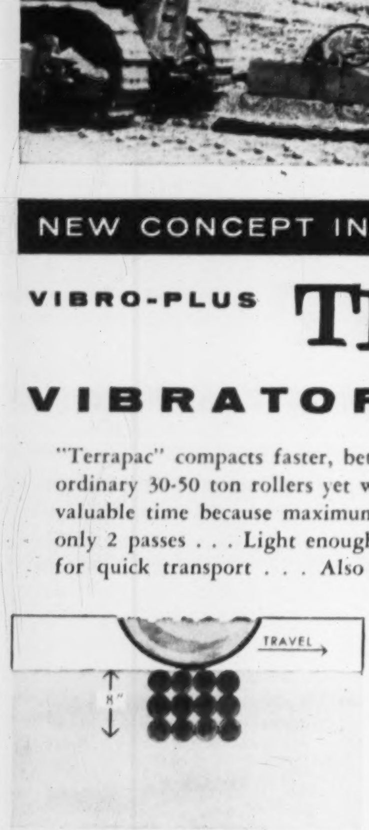
DIESEL OR GASOLINE ENGINE
HYDRAULIC SPEED CONTROL
V-BELT DRIVE
CENTRIFUGAL CLUTCH
SHOCK MOUNTING
ADJUSTABLE VIBRATION FREQUENCY
FRAME, VIBRATION FREE AND COUNTERBALANCED

NEW CONCEPT IN COMPACTION!

VIBRO-PLUS **TERRAPAC**

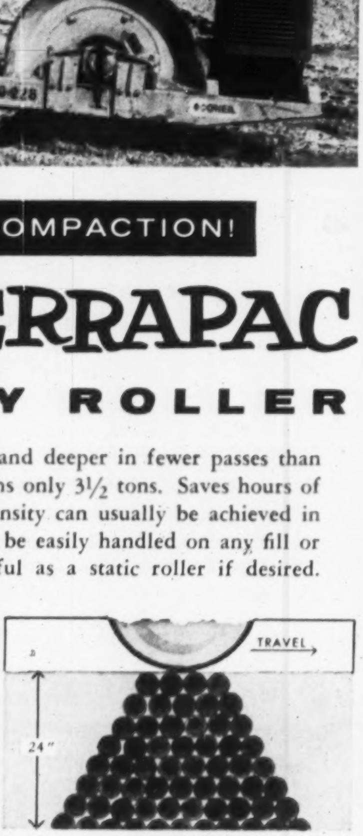
VIBRATORY ROLLER

"Terrapac" compacts faster, better and deeper in fewer passes than ordinary 30-50 ton rollers yet weighs only 3½ tons. Saves hours of valuable time because maximum density can usually be achieved in only 2 passes . . . Light enough to be easily handled on any fill or for quick transport . . . Also useful as a static roller if desired.



CONVENTIONAL STATIC COMPACTION

Rollers relying on weight alone produce friction forces between individual soil particles that prevent densification at any great depth.



TERRAPAC DYNAMIC COMPACTION

Vibratory forces, transmitted to soil in all directions, reduces friction — facilitates relocation of particles at far greater depths.

An actual field test under State Highway supervision showed that a specified 100% standard proctor density could be obtained at a 24" depth after 2 passes with a "Terrapac" . . . A 15 ton smooth roller required 20 passes to obtain specified density at only an 8" depth!

VIBRO PLUS

PRODUCTS, INCORPORATED
STANHOPE, NEW JERSEY

No. 41-6

Back-Pack Rock Drill

A completely self-contained drill can be pack-carried by one man. Designated Cobra the new drill weighs 53 lb. Equipped with Sandvik Coromant steels, the new unit will drill up to 26 ft an hour and to depths of 13 ft. Operational average is claimed to be 100 drilling ft per gal of gasoline. The one-cylinder, two-cycle, free-wheeling motor has a pull type starter and a floatless carburetor to permit inclined drilling positions up to 45 deg. An integral compressor provides 100% air flushing of drilling mechanism channels. Atlas Copco Pacific Inc. 930 Brittan Ave., San Carlos, Calif.

General-Purpose Chain Saw

A new general-purpose chain saw has direct drive, a 3,000 ft per min chain speed, overspeed controller along with other features. Weighing 26 lb complete with an 18-in. bar and chain, the new saw is said to be handy enough for a scrap wood lot, yet tough enough for production cutting. The engine delivers maximum torque and work power at 5,000 rpm engine speed, and uses built-in advantages to reduce heat and improve bearing life. The machine is said to be designed for continuous cutting under all weather conditions. Mall Tool Co., 7725 S. Chicago Ave., Chicago 19, Ill.

Low-Bed Truck Trailer Has Greater Payload Capacity

Combining their engineering and design efforts, Talbert Trailers, Inc. and Hendrickson Manufacturing Co. have developed Talbert's model TL-25-RG-spl low-bed trailer.

(*New Products continued on page 54*)

Pushed for Greater Drafting Room Output?
Modern Reproduction Machines Will Help You Get It!

NOW Is the Time to Get Your New, Modern
BRUNING COPYFLEX MACHINE!

The boom in production means more pressure than ever for engineering drawings and prints. Right now is the time to replace that old inadequate reproduction machine you've been putting up with — now's the time to get a modern, efficient Bruning Copyflex.

In just the last year, Bruning has introduced five new, advanced machine models, one of which is shown at the right. These machines offer you the famous problem-free installation and operation of Copyflex . . . no exhaust venting, no plumbing or auxiliary equipment, no installation other than an electrical connection. They bring you faster reproduction speed and a host of operator conveniences such as fast return of originals, automatic separation, front or rear delivery. They are the efficient, economical, modern reproduction machines that will help you boost your drafting room output, keep costs at a minimum.

Now is the time to act. Mail the coupon below. You'll be glad you did!

Copyflex Model 500
A new, ultra-fast, heavy-volume machine offering top mechanical speed of 40 f.p.m., automatic separation, front or rear delivery, automatic stacking, and a host of other advanced features.

BRUNING Copyflex

Best Process! Best Machines!
Best Selection of Materials!

Specialists in Copying Since 1897

CHARLES BRUNING COMPANY, INC., 4700 Montrose Ave., Chicago 41, Illinois
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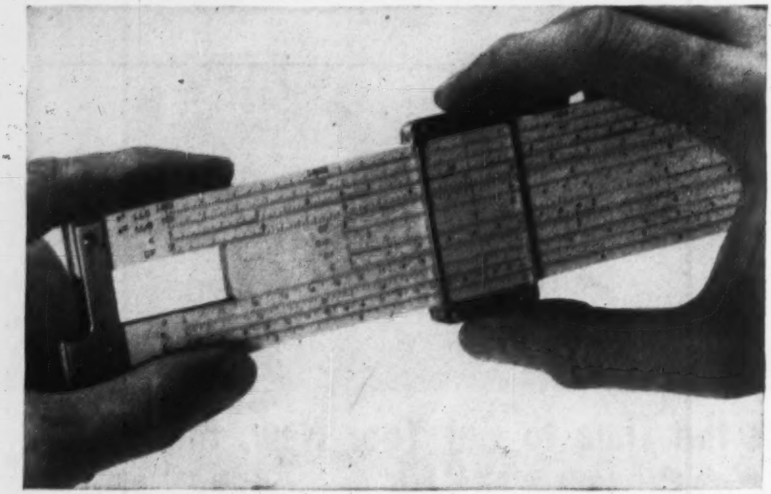
Charles Bruning Company, Inc., Dept. 83-M
4700 Montrose Ave., Chicago 41, Illinois
Please send me information on Copyflex process and Model 500 machine.
Name ________ Title ________
Company ________
Address ________
City ________ County ________ State ________

DRAFTING TRENDS



Developed and perfected just 4 years ago, Versalog has been adopted by virtually all of the leading engineering colleges.

New engineering rule reduces error hazards, requires fewer settings

A highly versatile rule called "Versalog" is perhaps the most significant slide rule development of the past 25 years. Developed by prominent engineers and educators, it is specifically designed for engineering use. With 23 versatile scales, it is universally applicable to all basic engineering fields.

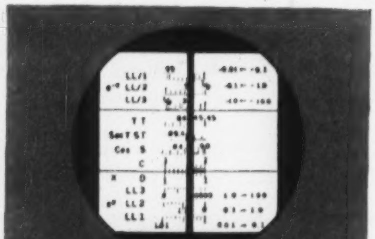
The Versalog offers many new developments, but these four stand out:

The R1 and R2 scales determine square roots with far greater accuracy; *actually four times the accuracy* of conventional A and B scales on other rules.

Exclusive color coding simplifies calculations. The color of the trigonometric scales is simply matched with the same color of the corresponding C, D or CI scale.

New end zone designations of the log and log log scales permit more accurate calculations. Designations of these scales are inscribed to the left, while the markings to the right designate the value of e covered by each scale.

The LL scales are extended and better arranged. The addition of a fourth scale has increased the range to cover 1.001 to 22,000. The log log scales cover a range from 0.00005 to 0.999.



New end zone designations of the log and log log scales aid the operator in fast, accurate calculations.

Because of its versatility, accuracy and ease of operation, Versalog has been adopted by scores of universities. Seldom has a new engineering product met universal acceptance so quickly.

Like all Post slide rules, Versalog is made from seasoned, laminated bamboo to assure a lifetime of smooth and accurate operation.

Further information on Versalog is available from the Reader Service Division of the Frederick Post Company, 3668 N. Avondale Avenue, Chicago 18.

POST

SENSITIZED PAPERS & CLOTHS • TRACING & DRAWING MEDIUMS • DRAWING INSTRUMENTS & SLIDE RULES • ENGINEERING EQUIPMENT & DRAFTING SUPPLIES • FIELD EQUIPMENT & DRAFTING FURNITURE

The trailer is said to be the first of its kind, and the first low-bed trailer suitable for a 9-ft spread tandem assembly. With the 9-ft spread construction, the manufacturer claims payload is increased. Removable outriggers are also provided for transporting 10-ft loads. Talbert Trailers, Inc., 7950 W. 47th St., Lyons, Ill.

Backhoe Digs to Deeper Level Has Synchronized Push-Pull

Now on the market is the new "Chief" backhoe, designated as Model D90, which is said to dig effectively at the 14-ft level and can reach down to 15 ft below ground surface.

Working efficiency of the new "Chief" has been accomplished by providing three 120-deg quadrants of operation, and permitting the operator to switch the boom to any of the quadrants without moving from his seat. In addition to its extreme digging depth, the machine offers exceptional power by synchronizing the action of a push cylinder at one end of the bucket boom axis with a pull cylinder midway between the axis and the bucket. Shawnee Manufacturing Co., Inc., Topeka, Kans.

Hydraulic Hammer Given A Number of New Features

Hydraulically controlled tower-tilt and lay-down, adjustable seat and brake pedal, and hydraulic transmission and shock accumulator are among the features of the newest model Ottawa Hydra-Hammer.

The manufacturer says that the tower traverse arrangement enables fast, smooth, horizontal left or right movement of the tower while maintaining a vertical position. A four-foot path can be broken or compacted to original density with direct blows. Ottawa Steel Div., L. A. Young Spring & Wire Corp., Ottawa, Kansas.

Field Office Trailer

A new field office trailer built especially for contractors, is now on sale at the Atlantic Trailer Corp. in Baltimore.

The new trailer is 23 ft long, 8 ft wide and comes equipped with desks, drawing board, fluorescent lights, shelves, oil heater, ventilators, screens, and pressed hardwood interior. Atlantic Trailer Corp., 9292 Pulaski Highway, Baltimore 20, Maryland.

(*New Products continued on page 56*)

City officials, engineers, contractors will be interested in these . . .

Facts About Steel Water Pipe

COMPARE THE COSTS . . . This scale drawing compares a single 40-ft length of steel pipe with two 16-ft lengths of rigid-walled pipe of the same inside diameter. The steel pipe has thinner walls and a smaller outside diameter; weighs only about one-fifth as much per ft of length. Results: the steel pipe costs less to ship and handle; requires a smaller ditch, fewer bell holes, fewer joints—only 132 per mile.

TESTED FOR STRENGTH . . . *Every* length of steel pipe is hydrostatically tested at the shop in accordance with AWWA specifications—usually to double the working pressure. What's more, steel pipe is designed to withstand from 3 to 4 times the working pressure! It safely resists water-hammer, shock loadings and surge.

BEAM STRENGTH . . . Steel pipe has the structural strength that is characteristic of tubular steel. It can span long washouts; is often handled in multiple lengths during installation. And steel pipe can stand up under the weight of extremely heavy cover.

RESILIENCE . . . Steel "gives" under stresses that would cause more rigid materials to crack or break. Steel pipe can "absorb" traffic vibration as well as shock due to explosions and earth tremors. Its resilience allows it to transmit much of the strain to the surrounding earth. This is not true of rigid-walled pipe.

LEAKPROOF JOINTS . . . 100 pct bottle-tight joints are a practical reality with steel pipe, whether Dresser couplings or welds are used. Water leakage is prevented; there's no contamination of the contents due to infiltration from without. These joints are quickly made, they're permanent, and they're strong.

CORROSION-RESISTANCE Modern methods of lining steel pipe with hot-spun coal-tar enamel make it immune to corrosion and incrustation. There is no known time limit to this protection. Many tar-enameled lines have been in service for upwards of fifty years. Coal-tar enamel provides the smoothest surface obtainable, assuring high flow coefficients year after year. Coatings and wrappings protect the pipe exterior from moisture, acids and alkalis.

WIDELY USED . . . Large-diameter steel pipe is the growing choice of planners of municipal and industrial water systems. Some recent users of Bethlehem Steel Pipe are: New York City, New Orleans, Philadelphia, Savannah, Reading, Cincinnati, Atlanta, Omaha, Worcester, Colorado Springs and Boston. Further proof of the superior qualities of steel pipe is its use in thousands of miles of large-diameter gas and oil lines, as well as in high-pressure penstocks throughout the world.

If you would like to have further information about steel water pipe, kindly call or write to the Bethlehem sales office nearest you.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Do You Have This PIPE PROTECTION PROBLEM?

Underground piping must be protected against destructive forces of corrosive soils and electrolytic conditions. Normally, coal tar coating as called for in AWWA specifications C-203 and C-204 would be hot-applied at a coating mill. However, there are times when the volume of pipe involved or the distance of a coating mill make this impractical from a time and cost standpoint.

You'll find the ANSWER with TAPECOAT® . . . the Quality Coal Tar Coating in Tape Form

TAPECOAT is the widely-accepted alternate material that is equivalent to mill-applied hot coal tar protection. With this easy-to-use material, protection can be applied in the field by your own men, because technical know-how, kettles and special crews are not required. You save time and money while providing the long-life protection called for.

TAPECOAT is easily applied, using a torch to soften or bleed the pitch which gives both bond and protection. Available in widths from 2″ to 24″, it is spirally wrapped or cigarette wrapped around pipe, pipe joints, couplings, conduit, cable, and insulated piping.

Write for illustrated brochure.

The TAPECOAT® Company

Originators of Coal Tar Coating in Tape Form

1551 Lyons Street
Evanston, Illinois

. . . New Products

Plastics for homebuilding—The stated goal of a new 15-page booklet is to highlight major applications of plastics in the home which afford the builder the opportunity to realize lower initial cost and greater profits. It is divided into five parts: plastics for foundations, framing, finishing, built-in equipment, and mechanical equipment. In a cutaway sketch of a modern home, the centerfold drawing shows 27 uses of plastic building materials. BAKELITE CO., RM. 1502, DEPT. RM, 300 MADISON AVE., NEW YORK 17, N. Y.

Nonshrink, pre-mixed grout—A three-page specification for non-shrink grouting of heavy equipment, anchor bolts, building columns, and bridge seats is now available. The specification is in eight sections: grouting materials, storage of material, mixes in relation to clearance, mixing the grout, forming, preparation, placing the grout, and finishing. Also, available is a one-page functional specification for premixed, nonshrink grout. THE MASTER BUILDERS CO., 7016 EUCLID AVE., CLEVELAND 3, OHIO.

Graders—Titled "Evaluate Motor Graders by Degree of Performance," the latest in a series of publications by LeTourneau-Westinghouse, lists specifications of a number of comparable graders for easy comparison with its own Adams line. LETOURNEAU-WESTINGHOUSE CO., PEORIA, ILL.

Luminous ceilings—A 10-page booklet gives details, specifications and advantages of the Sigma luminous ceiling. Laid out on 4-ft or 5-ft modules, the Sigma system incorporates acoustical baffles. Baffles also serve as integrated air diffusers, sprinkler heads, as well as lighting louvers. THE WAKEFIELD CO., VERMILION, OHIO

Grizzly—A new bulletin describing the Symons Vibrating Bar Grizzly has been announced, giving details on this high capacity scalping unit for large tonnage operations dealing with feed size up to 30 in. and larger. NORDBERG MANUFACTURING COMPANY, MILWAUKEE 1, WIS.

Yardstick for tightening bolts—A 12-page catalog describes a new preload indicating washer that controls tightening of bolted connections and permits accurate preloading to as high as 80% of bolt yield strength. Called PLI-Washer, the device consists of two concentric steel rings sandwiched between two close-tolerance washers. The inner ring is thicker than the outer ring and is compressed as the bolt is tightened. When this inner ring is compressed to the extent that the outer ring binds against the adjacent washers, the desired preload has been induced in the bolt. The tightened assembly becomes an integral part of the connection. Included in the booklet are fatigue data, sectional views, a stress-strain curve and specifications. Standard Pressed Steel Co., Jenkintown, Pa.

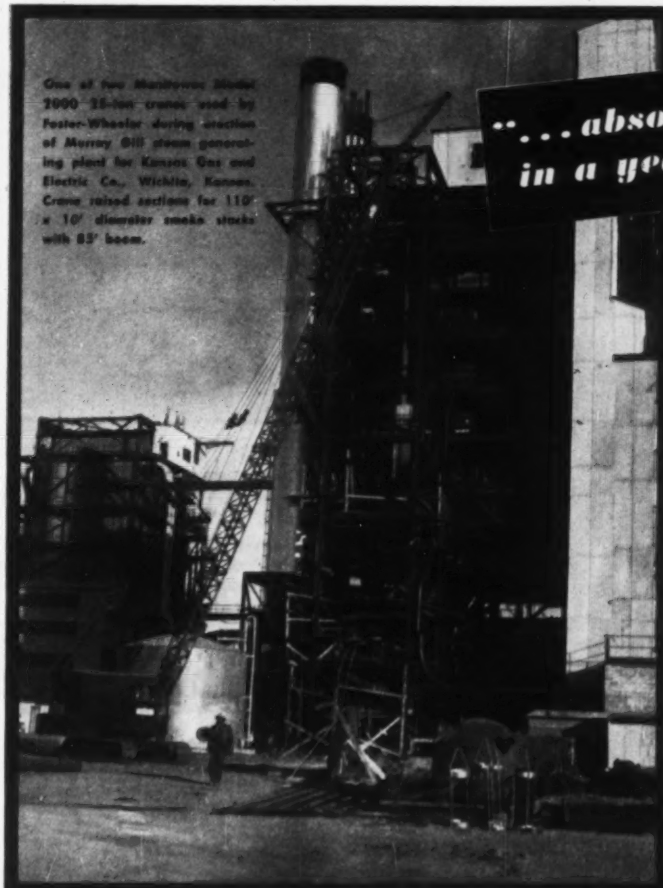
Machine-plastering techniques—The role of plaster machines in the application of lightweight vermiculite plaster and acoustical plastic is emphasized in a new color-sound film that traces plastering from the days of the pyramids to modern machine methods. Among applications included in the 20-min, 35mm filmstrip are insulating spandrel and panel wall backup; base coat plastering; lightweight solid partitions; sound-conditioning; and fireproofing. ZONOLITE CO., 135 S. LASALLE ST., CHICAGO 3, ILL.

Welder—A new semi-automatic welder is described in a folder from Amsco. The folder gives details of the operation and makeup of the new welder, which is claimed to provide more working radius, to be more portable, and has more safety devices built in than most others on the market. AMERICAN MANGANESE STEEL DIV., CHICAGO HEIGHTS, ILL.

Concrete forms—A 32-page catalog describes the Uni-Form panel system of forming concrete. Well illustrated, the catalog points out the many features that provide the contractor with a method of forming concrete rapidly and economically. UNIVERSAL FORM CLAMP CO., 1238 N. KOSTNER AVE., CHICAGO, ILL.

Film about pipe insulation—Armstrong Cork Co. has released an 11-min sound-slide film on Armaflex, a flexible foamed-plastic insulation for pipes. To arrange a showing, interested groups may contact any Armstrong district office or the INSULATION DIV., ARMSTRONG CORK CO., LANCASTER, PA.

Cold process roofing—Specifications for both single-ply and two-ply built up cold process roofs are given in a new four-page bulletin. Also described is a specification for installing a new cold process flashing. THE MONROE CO., INC., CLEVELAND 6, OHIO.



One of two Manitowoc Model 2000 25-ton cranes used by Foster-Wheeler during erection of Murray Gill steam generating plant for Kansas Gas and Electric Co., Wichita, Kansas. Crane raised sections for 110' x 10' diameter smoke stacks with 85' boom.

"... absolutely no maintenance in a year-and-a-half..."

Manitowoc crane is "perfect"

. . . says Field Superintendent

"As far as Manitowocs are concerned, I'd rather use them than any crane I've come in contact with!" That's Mr. S. C. Townsend, a Field Superintendent for the Foster-Wheeler Corp., referring to a 25-ton Manitowoc Model 2000 crane he uses — one of 30 Manitowocs owned by Foster-Wheeler. Here's more sincere praise Mr. Townsend has for Manitowoc cranes . . . "They never have given us any trouble. My operators say they are the easiest on the market to operate. Manitowocs seem to have plenty of horsepower for anything we attempt to do. One of the 2000 machines has had absolutely no maintenance on it, except to change oil, in the year-and-a-half we have owned it. It has been perfect. I appreciate the fast, courteous service I get from Manitowoc."

Why not put a Manitowoc to work on *your* next job? A phone call to your helpful Manitowoc distributor will bring full details and specifications. Contact him *now* before your next important bid!

Manitowoc Engineering Corp. Manitowoc, Wis.

"... easiest to operate..."

Disc type swing and travel clutches give smooth, pin-point control without grabbing or jerking. Optional air controls and power-smooth torque converter make any Manitowoc the "operator's friend".

"... plenty of horsepower..."

Simplicity of main machinery design adds horsepower where it's needed. Just 13 gears and pinions in the Model 2000 machine . . . only working gears turn. Exclusive sliding pinion arrangement uses only one set of clutches to drive travel, swing and boom hoist.

"... never any trouble..."

Finest quality construction with special alloy steels used at all points of greatest wear. Maintenance is easy for simple servicing in the field with minimum downtime.

"... fast, easy convertibility..."

Conversion to 1¼-yd. shovel and trench hoe, and long-reach dragline is quick and simple with same back hitch arrangement. Except for drum laggings, all changes need only pin connections.

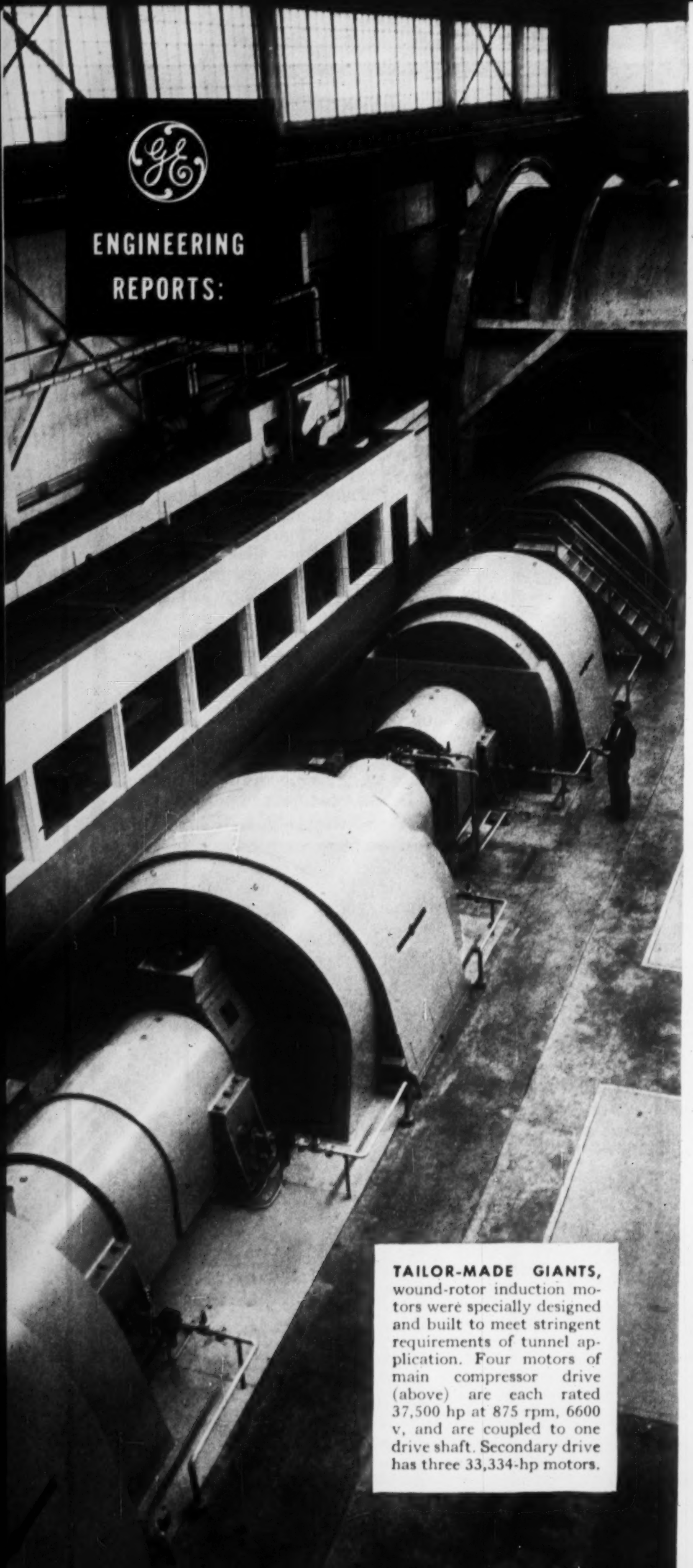
MANITOWOC

Speedcrane

SHOVELS
1-5½ YD.

CRANES
20-100 TON

ENGINEERING REPORTS:



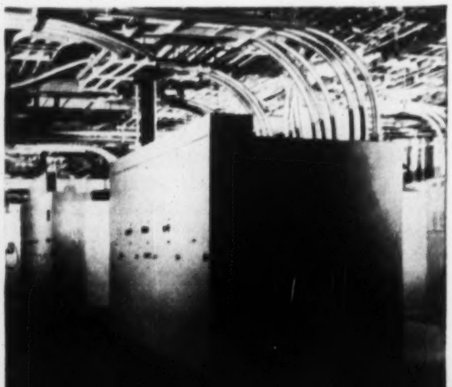
TAILOR-MADE GIANTS, wound-rotor induction motors were specially designed and built to meet stringent requirements of tunnel application. Four motors of main compressor drive (above) are each rated 37,500 hp at 875 rpm, 6600 v, and are coupled to one drive shaft. Secondary drive has three 33,334-hp motors.

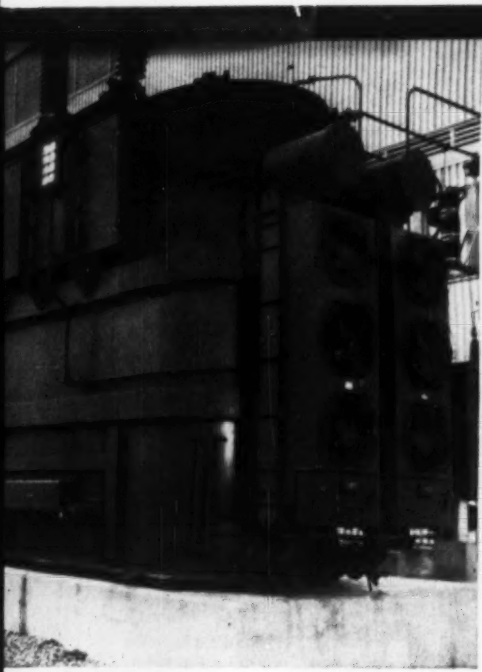
HIGHLY-RELIABLE stepdown of large blocks of 138-kv power is feature of specially-designed 70,000-kva transformers in huge substation.

General Electric wind tunnel to

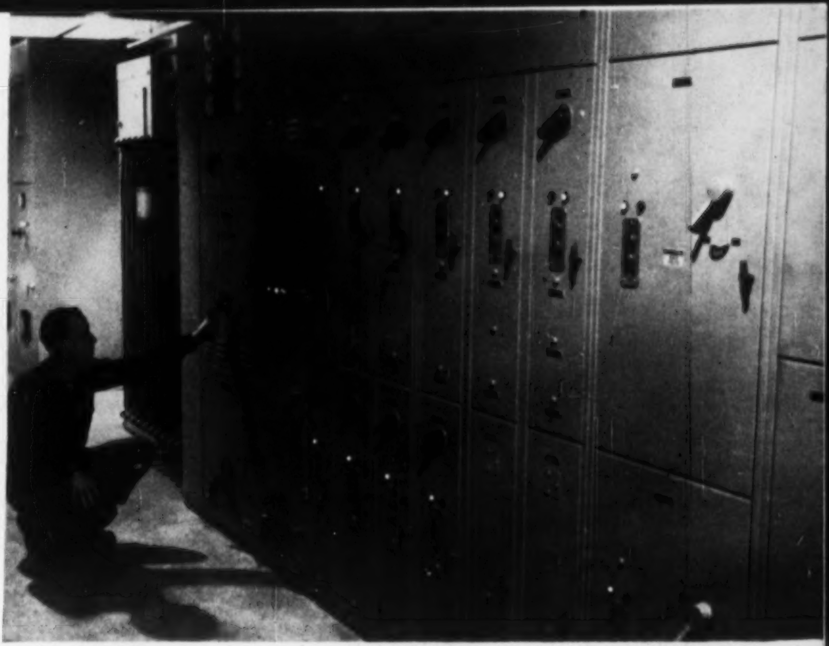
ENGINEERING ASSISTANCE helped from design to start-up. Here (r-l) K. F. Culler, G-E engineer confers with NACA's J. R. Braig, M. H. Pollyea.

PROTECTION, control of high-current circuits supplying power to drive motors is provided by highly dependable G-E metal-clad switchgear.





Interconnected tertiary windings can supply power to any main motor to sustain operation should its normal source be interrupted.



FACTORY-ENGINEERED, ASSEMBLED control provides centralized control of auxiliary motors. Double-ended Cabinetrol* unit substation (above) provides power and control for smaller motors. Limitamp* units serve higher-voltage motors.

helps NACA equip world's most powerful allow testing of aircraft engines at 2300 mph

For testing of aircraft engines in winds 3½ times speed of sound the National Advisory Committee for Aeronautics has opened a new wind tunnel at Lewis Flight Propulsion Laboratory, Cleveland. General Electric helped design and supplied the power system for this impressive installation.

IMMENSITY OF JOB is apparent from fact that electric system supplies enough power for homes in city of 650,000. Two compressor drives totalling 250,000 hp continuously (300,000 hp for short periods) make this the most powerful wind tunnel drive in the world and one of largest motor drives known.

General Electric application engineers C. C. Clymer, K. C. Mobarry, and M. D. Horton combined the required special equipment into a co-ordinated electrical supply, drive, and control system. They worked closely with NACA to help assure reliable, efficient operation of this important new facility.

THIS DEMONSTRATES General Electric's ability to perform on the most exacting, complex projects. The same engineering resources can be put to work for you no matter what your electrical problem. Contact your nearest G-E Apparatus Sales Office. General Electric Co., Schenectady 5, N. Y.

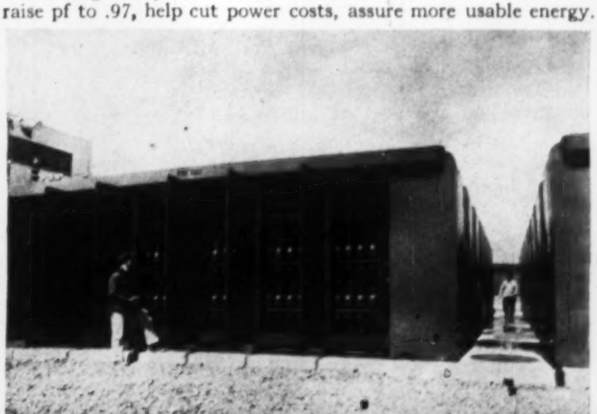
664-42

*Reg. Trade Mark General Electric Co.

Engineered Electrical Systems for Heavy Construction Projects

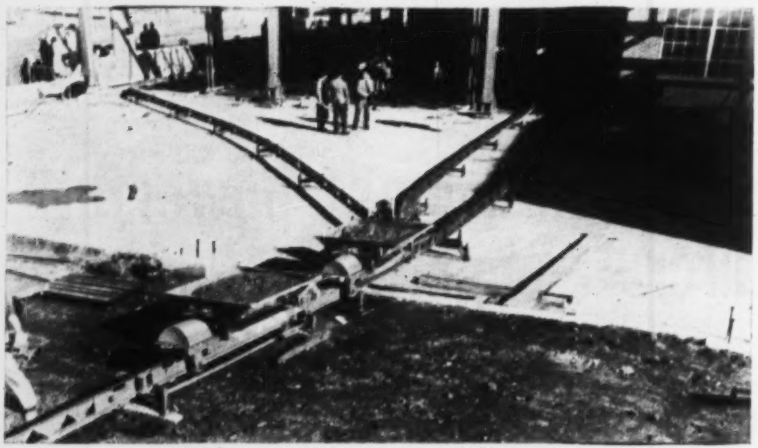
GENERAL ELECTRIC

CORRECTING POWER FACTOR of big induction motors required one of largest capacitor banks known. 3344 General Electric units raise pf to .97, help cut power costs, assure more usable energy.

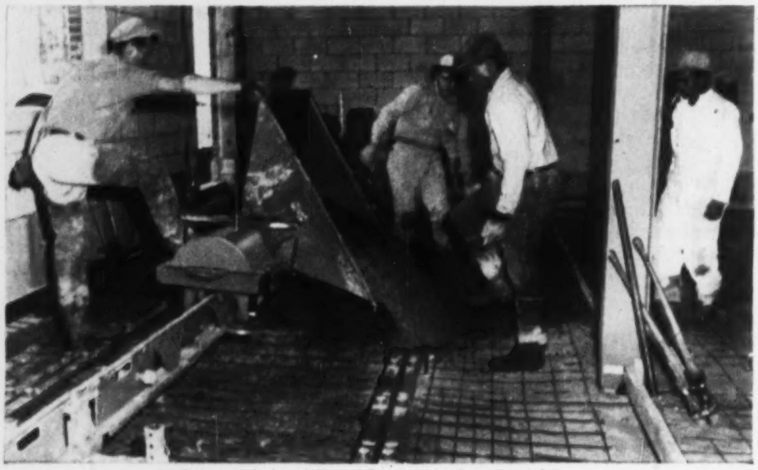


CRITICAL READINGS from tunnel drives are conveniently, accurately supplied to operator by sensitive, easy-to-read instruments, recorders, and telemetering systems on control panels.

10 cf. load of concrete for the Railporter trailer.



360-foot unattended round trip every 2¼ minutes.



Rail stands straddle reinforcing mesh and conduit.

"The new REX RAIL PORTER saved us $1.15 a yard..."

This was the performance of the Rex Railporter on an office floor slab pouring job for Klug and Smith, Inc., of Milwaukee, Wisconsin. The Rex Railporter, complete with trailer unit and unattended, covered an average round-trip distance of 360 feet every 2¼ minutes with a 20-cubic-foot load of concrete...better than 18 yards an hour with only six men to charge, convey, place and puddle.

The Rex Railporter, a portable transport for construction material, runs on a single rail which is easily handled and laid by two men. Rail stands are adjustable for rough terrain. On this job the rail straddled the reinforcing mesh and conduit, eliminating the need for runways.

The Railporter is self-powered, runs unattended between loading and discharge points, stops automatically where desired and can be dumped to either side. Power and trailer units each carry 13 cubic feet of material (liquid level) or 10 cubic feet of concrete. See your Rex Distributor or write for Bulletin 56-47. CHAIN Belt Company, 4633 W. Greenfield Ave., Milwaukee 1, Wis.

CONSTRUCTION REX MACHINERY®

CHAIN BELT COMPANY

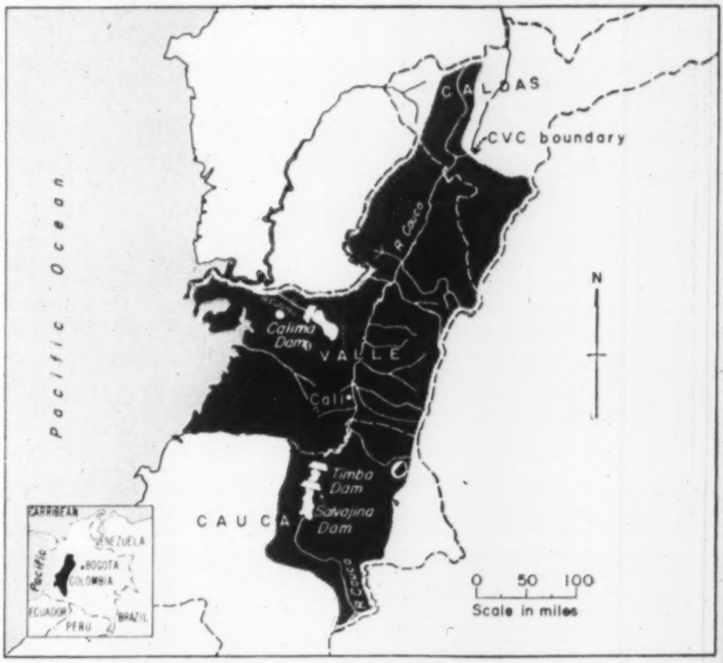
PRINTED IN U.S.A.

Started:

- A 298-ft-high dam on Calima River and 120,000-kw power plant
Cost: $28.5 million

Planned:

- A 3,940-ft-long earthfill dam at Timba
Cost: $45 million
- A 504-ft concrete gravity dam at Salvajina
Cost: $80 million
- High-voltage transmission lines
Cost: $31 million
- 23.5 mi of dredged cutoffs to reduce Cauca River length by 71 mi
Cost: $10 million
- Irrigation and drainage structures over 800,000 acres
Cost: $105 million



Colombia Starts Building Its TVA

TVA has spawned another offspring — this one in 200-mi-long Upper Cauca River Valley, just southwest of Bogota, Colombia. Formed a year ago, the Autonomous Regional Corporation of the Cauca, or CVC, got off the ground this March when it began its first big undertaking, a 298-ft-high dam on the Calima River, with a 120,000-kw power plant, to cost $28.5 million.

Other major projects planned for a start in the next five years are delineated in the box above.

The Upper Cauca Valley, centered around fast-growing Cali, is potentially Colombia's richest region. It contains 3,000,000 people, about one-quarter of the country's total, and its net income is now at the same percentile level. But the valley's ideal geographical locatiaon in relation to the outside world and to the rest of Colombia, its pleasant temperate-warm tropical climate, the varying terrain from flat river plain to steep mountainsides that make for diversity, and the availability of water for both power and land reclamation make conditions opportune for rapid economic growth.

- **Lilienthal spurs formation**—Colombian officials had envisioned various aspects of a region-wide authority to spur development, but it remained for David Lilienthal—invited to visit the area in 1954—to suggest a scheme to put the pieces together.

As decreed by national law and with the avowed support of the three affected states (known as departments), CVC is to engage directly in electric power generation and distribution, flood control and construction of irrigation and drainage works (operated by local reclamation districts). It is to promote soil conservation, mineral resource use and communication and transport system improvement.

CVC boundaries—including all of the Department of Valle and parts of Cauca and Caldas—take in 7,400,000 acres, but only 975,000 acres lie in the flat plain surrounding the Cauca and various other smaller rivers, where all of the construction, except transmission lines, will be centered.

- **Power foremost need**—Power is the region's first need, according to a recently completed engineering report prepared by a consortium of consulting firms. Present peak demand is 95,000 kw, expected to increase to 177,000 kw in 1960, and 355,000 kw by 1965.

Calima Dam, strictly a power project, will be followed by Timba Dam, providing power, irrigation water and flood protection, and scheduled for a 1957 construction start. Salvajina Dam is another multipurpose project aimed for a 1959 beginning. Shortening and improving flow characteristics of the Cauca River is to begin in 1959, so to time completion with Timba Dam.

Irrigation and drainage canals (including several pumping installations) are to be constructed over a long-term period. When the land reclamation program is in full swing, possibly by 1985, engineers estimate that agricultural production will jump from present $91 million to $228 million for the 800,000 acres of rural area in the river plain. Net income should rise from $16 million to $88 million. Investment for reclamation (includ-

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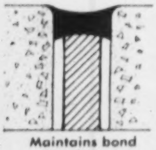

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Nothing equals the joint sealing performance and protection of Servicised Para-Plastic. Stable, constant in volume, Para-Plastic is a rubberized asphalt compound that maintains bond at normal and sub-zero temperatures. Field proven — widely used, it's the most effective joint seal on the market.

Write for details on Para-Plastic and simple, low cost application method.

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ing apportioned amounts of dam costs) will total $174 per acre and annual cost will be $23 per acre. The net benefit is estimated at $68 per acre, a satisfactory 3:1 ratio with annual cost.

CVC is set up much like an American corporation; it is run by an executive director reporting to a directive council, composed of the governors of the three participating states plus four other members appointed by the Colombian president. About half of CVC's construction money will be borrowed, much of it from foreign sources such as the World Bank. Non-borrowed equity capital will be provided by the national government —probably in amounts exceeding 50% —and by the departments according to benefits received.

• Calima project highlights. An underground powerhouse and a long diversion tunnel to capture the flow of a tributary river feature design of the Calima project. To be hewn out of schists and slates, the underground power plant measures 147x59 ft in plan. Access is through a 21x25-ft vertical shaft 475 ft high. Four 30,000-kw generators will be powered by four Francis-type turbines rated at 42,000 hp at average 695-ft head. Over the expansion chamber in a 5,900-ft tailrace tunnel will be a 6-ft-dia escape shaft 620 ft high.

Calima River average flow of 420 cfs will be supplemented by 230 cfs from the Bravo River, to be diverted through a 5-mi tunnel, 81 sq ft in cross-section. Calima Dam, as now conceived, will be a concrete gravity structure, 298 ft high and 374 ft long and will impound 340,000 acre-ft of water. However, a rockfill design is under consideration due to uncertain foundation conditions. Work on the construction camp, access roads and diversion tunnel (for the dam) has begun while Tippetts, Abbett, McCarthy & Stratton and Gibbs & Hill, both of New York City, and Olarte, Ospina, Arrias & Payan, of Bogota, are working on plans and specifications for the dam and powerhouse. If completed for the estimated $28.5 million, cost per kw will be a very impressive $238.

Timba Dam on the Cauca River is planned as 3,940-ft-long 144-ft-high rolled earthfill dam. Its reservoir will hold 610,000 acre-ft, of which 247,000 acre-ft will be useful for flood control. Initial power capacity is 60,000 kw, from an average 95-ft head utilized by two Kaplan turbines.

The most imposing structure in the scheme is to be Salvajina Dam, 504 ft high, of concrete gravity type. Located at the upper end of Timba reservoir, the dam will impound 950,000 acre-ft, of which 850,000 acre-ft will be good for power and 200,000 acre-feet for flood control. Planned initial power capacity is 180,000 kw with provision for an ultimate 270,000 kw. A 584-ft head will be available.

Power Consultant Combine Formed by Italian Companies

Three prominent Italian companies, leaders in developing the power resources of Italy, have formed a joint company to offer consulting engineering service in the power development field abroad. A reason stated for the move is that the opportunities in this field in Italy have been exhausted.

The companies are Societa Adriatica di Elettricita, a large utility, owning and operating extensive steam and hydro power facilities; Fiat, the famous machinery manufacturing company; and Montecatini, sometimes called the Italian Du Pont, which among many other things owns the country's most modern oil refineries as well as a good many steam and hydro power plants. Montecatini, on its own, recently landed a big contract to build a power plant in Pakistan.

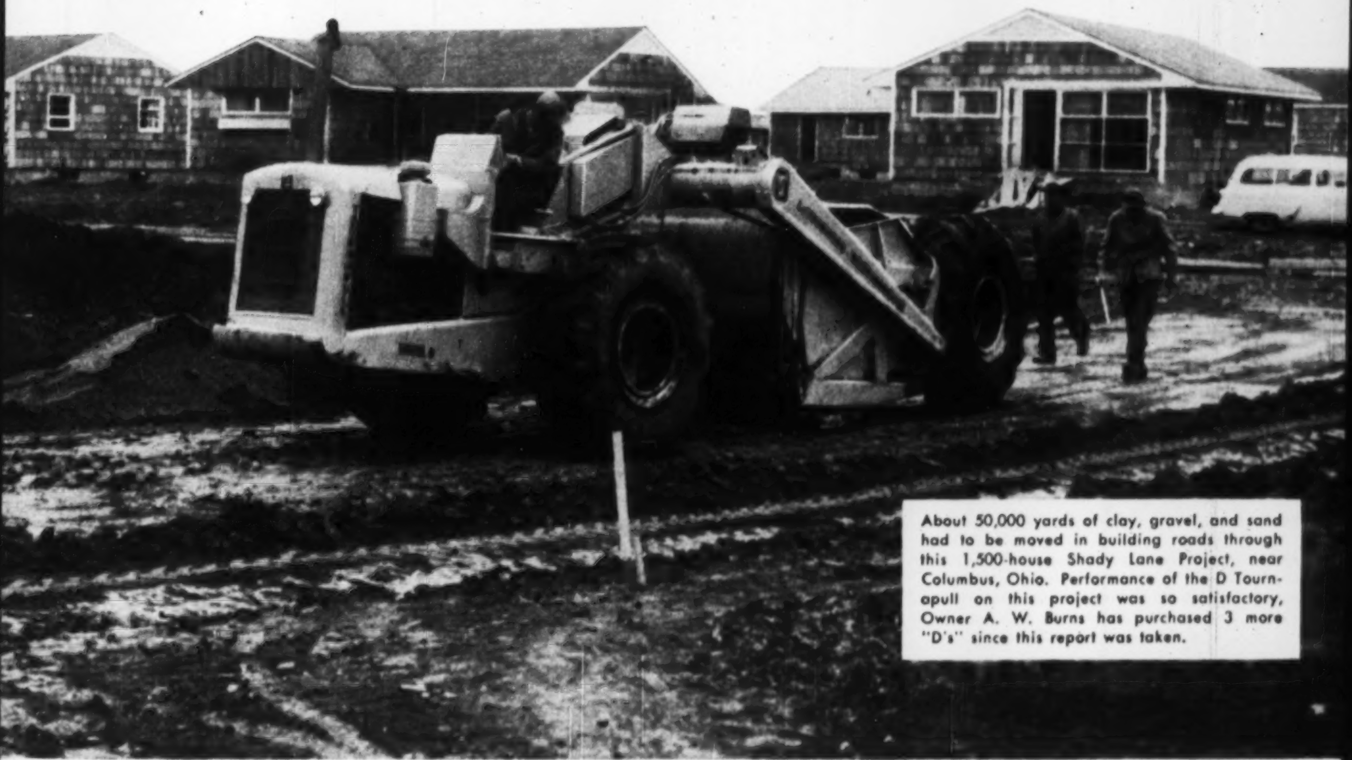
The services to be offered by the combine include surveys and studies, preliminary plans and cost estimates, final plans and specifications, letting contracts and supervising construction. These services apply to both thermal and hydro projects, and in addition to any kind of hydraulic structures connected with power, flood control, irrigation or water supply. The name and address of the new joint firm is Electroconsult, 13 Via Cavalotti, Milan, Italy.

Canadian Province Awaits Pipeline Construction Boom

Now that the Canadian parliament has approved an 80-million government loan to the Trans Canada Pipe Line Ltd., Winnipeg is bracing itself for a minor boom.

Construction of the proposed 575-mi prairie stretch of the new natural gas pipeline, to bring gas from the Alberta fields to the grain capital of Winnipeg, began this month, and will employ about 1,500 men. Construction is to be completed in four months, and contractors from both Canada and the United States have been invited to offer bids for one or more of seven sections into which the work will be divided.

Grades 3 housing projects at once



About 50,000 yards of clay, gravel, and sand had to be moved in building roads through this 1,500-house Shady Lane Project, near Columbus, Ohio. Performance of the D Tournapull on this project was so satisfactory, Owner A. W. Burns has purchased 3 more "D's" since this report was taken.

Shuttles equipment between jobs

A. W. Burns & Sons Construction Co., Columbus, Ohio, contracted to grade 3 suburban housing projects, scattered within a 5-mile radius.

To handle this hit-and-run earthmoving, company sent in a rubber-tired D Tournapull. The "D" worked wherever needed . . . traveled between the three projects over regular highways, at traffic speeds. With its big, low-pressure tires, "D" can drive over paving, curbs, and railroad tracks, without causing damage.

Tournapull spreads excess material to build up the level of lots in this area of housing project.

Fine-grades roads

Pictures were taken on the 300-acre Shady Lane Housing Project — where "D" handled clean-up work, and fine-graded roads for the P & M Development Co. and Bass Const. Co. After D Tournapull graded streets, a motor grader on the job needed only one pass to finish grade.

"D" kept ahead of construction requirements here, and at the same time "commuted" back and forth to the other two, to keep these ahead of the building crews. "D" proved especially adept in sub-grading assignments—working mostly in wet, slippery clay, mixed with sand.

Good visibility!
Quick-acting controls!

LaVoyd Lambert, a veteran operator, finds two of the Tournapull's features especially advantageous for his close-finish work. "The 'D' offers good visibility!" he says. And . . . "I like the 'D's' electric controls better than hydraulics."

Comments Mervin S. Day, General Manager for the Burns Construction Company, "The D Tournapull is very good for sub-grading on any job." Another Tournapull advantage is the little time that is needed for maintenance. Daily lubrication takes only 10 to 15 minutes, say company officials.

Ask for more information

Contractors all over the country have found electric-control Tournapulls ideally suited to land-leveling and street construction for subdivisions and other real estate developments. Why don't you investigate the "D's" advantages? Write or call for more information.

Tournapull—Trademark Reg. U.S. Pat. Off. DP-989-8-b

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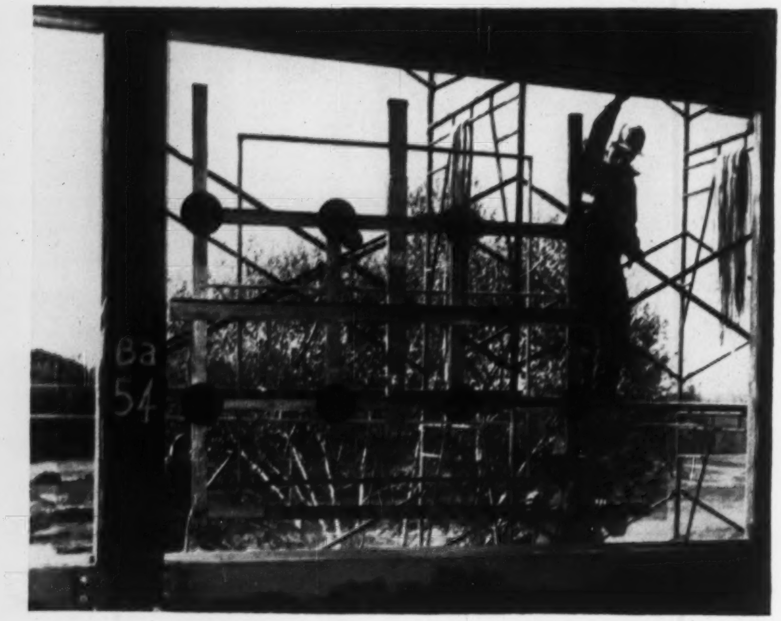
Field and Office



Window Panes Are Picked Up by Air

A strange-looking device is speeding installation of window panes for the new Connecticut General Life Insurance Building at Bloomfield, Conn. Moving up and down the sides of the $10-million structure, the novel contraption deposits an 8x11-ft green-tinted window pane in place on each trip. Panes are of heat-absorbent glass, ⅜ in. thick, and weigh 500 lb apiece.

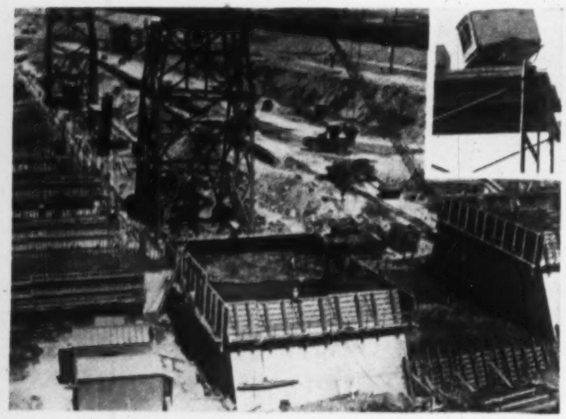
Designed especially for the job by Pittsburgh Plate Glass Co., the new handling unit consists of a rectangular bolted (and welded) steel frame to which are attached two horizontal steel bars. Along each bar are four rubber suction cups. The cups are hose-connected to a vacuum tank. Each cup is capable of holding the pane by itself, but the use of eight provides proper balance and a comfortable safety factor.

The frame is lifted by a chain fastened to its top and suspended from an electric drum hoist mounted atop the building. A 75-ft length of steel rail along which the hoist travels allows horizontal motion. Windows are installed from the top down. After each three-story, 75-ft section is glazed, the track is moved along the building.

Handling of uncrated glass is kept to a minimum by the method. Still in their crates, panes are trucked directly to the hoisting crew from storage. The crew puts the crate between the lifting frame and the side of the building, then opens it. Suction cups are placed against the exposed glass, and the glass is lifted from the crate to its final position in the structure.

Lifting from the ground to the floor being worked on is done by the overhead hoist.

For fractional adjustments necessary to position the glass, a hand winch is used, which is mounted on the lifting frame itself. This winch can be adjusted down to 1-16 in.



Keeping a TV Eye on Work

Field and office are separated only by the flip of a switch on the St. Lawrence Power Dam at Massena, N. Y. B. Perini & Sons has introduced closed-circuit television to provide visual contact and surveillance of construction. The TV camera—enclosed for all-weather operation—is mounted atop a mobile scaffold and controlled from a panel board in the office some distance away. The system has been used to monitor distant rock excavations, equipment placing and handling of materials. In addition, it provides a safe means of viewing blasting operations. The Perini hook-up, shown being operated by A. R. Berry, project manager, was developed by Dage Television Div. of Thompson Products, Inc., Michigan City, Ind.

Peoria, Illinois

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Takes shortest route to job . . . via highway or cross country . . . cuts hours from job-to-job moves.

Drives through city without interference to traffic, turns sharp corners, maneuvers easily in tight quarters.

Safe in traffic with big brakes, finger-tip control. Tires do no damage to blacktop, curbs, sidewalks.

Saves hundreds of dollars

by driving job-to-job under own power

A major advantage of rubber-tired Tournatractor is the high-speed on-the-job and between-job mobility it gives you. With this machine, you drive anywhere under your own power. Big low-pressure tires do no damage to pavement, curbs, sidewalks or railroad tracks. You don't need planking to cross blacktop. You save the time, bother, and expense of locating a trailer, moving in extra men and extra transport equipment, loading and unloading, etc.

When it's time to move from one job to the next, your operator starts as soon as the last yard is in place, drives down the highway, right through regular traffic, at road-travel speeds. 50 miles is only about 3 hours away...and you go right to work when you get there.

Then, if there's a call for tractor services at the other end of your job, Tournatractor hurries there, traveling up to 1,495 feet per minute. Often it can go, complete the work, and be back at its starting point, before a crawler gets to the site.

Figure out for yourself what this means in dollars:

1. Greater speed on the job that completes each assignment faster.
2. Roadability that cuts moving costs and reduces the non-pay hours of moving time.
3. Fast one-man moves that make it easy to keep Tournatractor profitably busy at all times, that let you fill in with small jobs between big ones with no standby losses.
4. Long range drive-yourself mobility and versatility that lets you move with the seasons, find year-round earnings when you need them.

Write or call us for more information on this versatile, high-speed tractor-on-rubber. Ask for a demonstration on your job. See for yourself what Tournatractor can do to speed your dozing, towing and pushing jobs.

Crosses tracks without damaging ties, tripping signals, tearing rails loose, or injuring tires.

Can haul own fuel wagon, other supplies. Self-sustaining on job, eliminates need for service trucks.

Tournatractor—Trademark T-735-G-b

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Peoria, Illinois

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Toughens up fast...
Seals joints that last

FLINTSEAL*...use it for old and new pavement

There's no traffic hold-up when you re-seal the joints of old pavements with Flintseal hot-poured rubber asphalt thermoplastic compound.

Normal traffic is resumed quickly because Flintseal *toughens up* as soon as it cools to air temperature. *Within 15 to 30 minutes.*

And Flintseal gives you *positive*, *dependable* sealing of all joints and cracks. It doesn't flow or extrude in summer . . . crack or pull away in winter. Flintseal bonds perfectly through all extremes of weather. Prevents water and dirt from getting under pavements . . . far more effectively than old-style tar and asphalt fillers.

Use Flintseal for concrete highways, streets, drives, bridge decks and airports. Count on this compound to keep maintenance costs down. One application will last for years and years. (Meets Fed. Spec. SS-S-164.)

Flintseal JFR, a special jet-fuel-resistant joint sealer is available for critical areas of airfields. (Meets Fed. Spec. SS-S-00167.)

Ask for literature and application data for Flintseal (regular) and Flintseal JFR (jet-fuel-resistant).

*Reg. U.S. Pat. Off.

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Labs for Research

Structural, fire research center is planned by PCA

The Portland Cement Association will construct two new laboratory buildings at its Research and Development Laboratories at Skokie, Ill. The buildings will cost $1.8 million (including equipment) and will permit expanded research on concrete structures and fire resistance of concrete.

One will be a 56x176-ft structural development laboratory, the other a 56x220-ft fire research center. The fire center will have a two-story 24x132-ft wing on one side.

Identical precast structural members will be used for the main portions of both buildings, which consist of a single, large room 40 ft high. Offices are to be located in an end bay of the structural development section and in the wing of the fire research center.

Frames for the two buildings will be of conventional reinforced concrete, while beams will have high-strength steel reinforcing bars. Beams for the two buildings were designed by the ultimate-strength method, with a 60,000-psi ultimate steel stress. Wall panels will be of tilt-up construction and the roof will be composed of precast concrete units. Decorative designs will be cast into the tilt-up wall panels.

The structural development laboratory is described as "one giant testing machine." Its testing equipment will be constructed as needed from structural steel shapes and hydraulic jacks. Holes in the concrete floor, 3 ft c-c, will make it possible to bolt down testing equipment. The floor is designed to act as a box girder in the longitudinal direction and as a truss transversely to provide needed strength to take test loads.

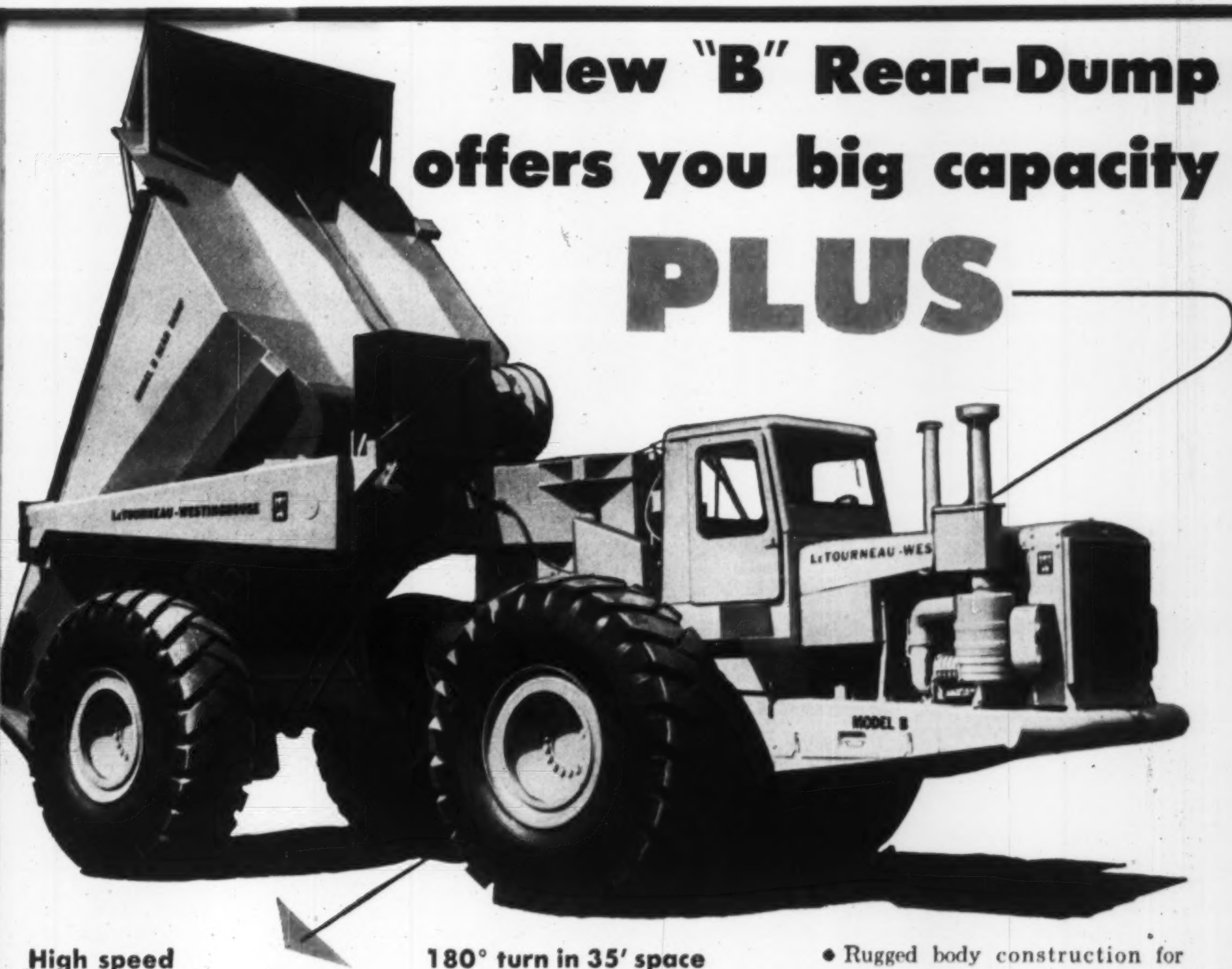
A study of the various types of connections used with precast members will be one of the first projects in the structural development lab. Another will be an extensive study of full-scale concrete floor slabs.

In the fire research center initial emphasis will be on determining the fire resistance of prestressed concrete. Here, six furnaces large enough to take full-scale beams, columns, walls and floor slabs, will enable researchers to conduct tests on actual members to improve the fire resistance of concrete.

(Research continued on page 68)

A Subsidiary of Westinghouse Air Brake Company

New "B" Rear-Dump offers you big capacity PLUS



High speed

B Tournapull Rear-Dump has forward speeds from 2 to 34 mph, plus two reverse speeds, 2 and 4 mph. Wide selection of speeds enable "B" to climb steep grades.

Easy loading

Loading of new "B" is made easier by large "target" area of bowl. Its 17′8″ length, 10′2″ width, and 7′6″ depth make it ideal for any size shovel. Rear of body provides wide, low entry for dipper to give extra speed advantage for the excavator. Big 35-ton capacity can make every load a profitable one.

Fast dumping

At the touch of a dashboard switch, body raises to vertical position. Edge of bowl swings behind and below rear wheels so rocks cannot roll forward to lodge against wheels nor can material pile under rear end.

180° turn in 35′ space

Two wheel prime-mover turns 90° right or left . . . machine in normal use makes non-stop 180° turn in space only 35′ wide. With body in dump position, machine can turn 180° in only 27′. This maneuverability of "B" allows you to work in tight quarters where smaller conventional haulers often cannot go. Jockeying back and forth to get into loading position is eliminated.

7536 square inches of braking surface

Heavy-duty air brakes with 7536 sq. in. of braking surface improve maneuverability . . . add to operator confidence for faster operation on steep grades and narrow winding haul roads.

New "B" also offers these additional features

- Big 7-ft. high 2-ft. wide low pressure tires for better flotation.
- Rugged body construction for longer equipment life.
- Simple, positive electric controls for fast, easy operating.
- Lower maintenance because there are no hydraulics, no long driveshafts, no springs or spring hangers.

Now available with optional tailgate. Ask for full details on how the Big "B" can serve you.

Tournapull — Trademark Reg. U. S. Pat. Off. BR-888-G-b

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Eight "Service Plazas" along the 241 miles of the new Ohio Turnpike might be called "cities in miniature"—providing the many services that traveling America wants or needs for its cars, their drivers and passengers. Each has its own self-contained water system; drawing its water from adjacent wells or, in two instances, from nearby towns.

Clow Cast Iron Pipe was used in the water supply, treatment, distribution and sewage disposal systems—because today more than ever before, Clow's precise, modern production methods and advanced, exacting control of metallurgical quality give forward-looking engineers added assurance of permanence.

Invite a CLOW man in to talk with you as soon as pipe appears in your plans.

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. . . Research

Reclamation Bureau to Study Frost Action on Concrete

The effect of voids in concrete upon deterioration from frost action is in for a thorough going-over by the Bureau of Reclamation. According to Secretary of the Interior Fred A. Seaton, the bureau has received a $9,000 grant from the National Science Foundation to study freeze-thaw breakup.

From past experience and recent tests (ENR April 19, p. 90), it is known that the presence of the tiny bubbles in concrete affects its endurance against deterioration in freezing. Not known, however, is what size and spacing of these voids provide greatest durability; and what factors in the mix design will produce the desired bubble characteristics.

The facilities of the bureau's Denver Engineering Center will be used for the study. Reclamation Commissioner W. A. Dexheimer noted that bureau structures in many parts of the West are subjected each year to repeated cycles of freezing and thawing in the presence of moisture. So that with some years of experience in dealing with the problem, the Denver lab is one of the few in the country equipped to carry out the investigation.

A three-man team, under the supervision of bureau engineer J. E. Blackstrom, will prepare hundreds of samples with different mix proportions and types of materials, using a variety of mixing methods. With special microscopic equipment, the size, number, and spacing of air bubbles will be determined. The destructive effects of alternate freezing and thawing, checked by weight loss and change in length, will then be recorded for companion specimens. Assisting Backstrom in the execution of the investigation will be H. L. Flack and David Ramaley, bureau civil engineer and physicist, respectively.

Ocean Tapwater by 1990?

Drinking water from the sea may be a reality by 1990, according to Fred A. Seaton, Secretary of the Interior. He termed the work of the Department of the Interior's Office of Saline Water Investigation a "tremendously important program," to render potable and useful, sources of brackish water which are unusable at the present time. Asked when the process might be in full-scale operation, Seaton envisioned pipelines carrying drinking water reclaimed from the sea, by as early as 1990.

Adams 660, push-loading a Model D Tournapull, kept firm footing in this heavy gumbo. Special push-plate was made by contractor.

Excavates and sub-grades streets *for Wichita subdivision*

At Woodlawn Village, a new residential subdivision east of Wichita, Kansas, Ritchie Bros. Construction Co. of Wichita contracted to excavate streets in a section of this 160-acre residential development by Wheeler-Kelly-Hagny Realty Co.

The Ritchies used 3 self-propelled scrapers and an Adams 660 grader to handle this street excavation work. The "660", with its wide range of speeds — forward and reverse — got around fast to push-load the 3 scrapers and level sub-grade for subsequent paving. Machines worked in heavy gumbo most of the time.

Foreman J. H. Boaz said this about the grader's performance:

"I have had over 20 years' experience in all types of construction, both heavy and light. The 660 is the best all-around grader I have seen."

◀ Quick back-up (to 13.7 mph) saves valuable time on shuttle grading. Operator has clear view of work, wide range of speeds to get more work done in less time, with Adams 660.

Operator Dean Wolf used 2nd gear, 3.3 mph, to push-load. "It seems to me," Wolf stated, "that the Adams is the best grader in use today. The machine outperforms any I have used, and visibility of the blade is good."

Wide range of speeds gives Adams the advantage in working any kind of material. Heavy Adams graders have 8 forward speeds, to 26 mph. With optional "creeper" gears, 3 extra-low speeds, from 0.23 to 1.82 mph, may be added. These low speeds move heavier loads, handle rocky material with greater speed and safety, insure more accurate blade control in fine finishing when the main job is done.

The "660" has four reverse speeds, to 13.7 miles per hour, which save time on shuttle-grading in narrow spaces between houses and on short passes, where quick backing enables operator to get more work done in less time. Fast reverse speed is valuable also in quick positioning to push-load scrapers, saves time for both units.

Engine develops power-to-spare

Big 150 hp diesel engine of Adams 660 starts easily in any temperature, develops power-to-spare, with lugging ability to move heavy loads in tough going. Engines in Adams heavy graders are rubber-mounted to reduce annoying vibration and promote greater efficiency of operator, with less maintenance on machine.

Heavy, box-construction, one-piece frame of grader resists shocks and stresses. Constant-mesh transmission makes gear-changing easy, lengthens life of gears.

Stops are safe and sure with double-action hydraulic brakes. Pressure on brake pedal stops transmission as well as drive wheels. Hand brake is used for parking.

Use performance yardstick

Buy your next grader on the basis of performance. Let us show you a modern grader at work, help you select the size best suited to your type of work operation.

A size ADAMS for every need

Model 660—150 hp diesel, 27,730 lbs.
Model 550—123 hp diesel, 23,500 lbs.
Model 440—104 hp diesel, 21,500 lbs.
Model 330— 80 hp diesel, 20,500 lbs.
Model 220— 60 hp diesel, 14,865 lbs.

TraveLoader — high-speed, heavy-duty, self-propelled, belt-type loader for all loose materials. 55 hp gasoline or 60 hp diesel engine. Wt. 16,800 lbs.

Tournapull—Trademark Reg. U.S. Pat. Off. AG-26-B-b

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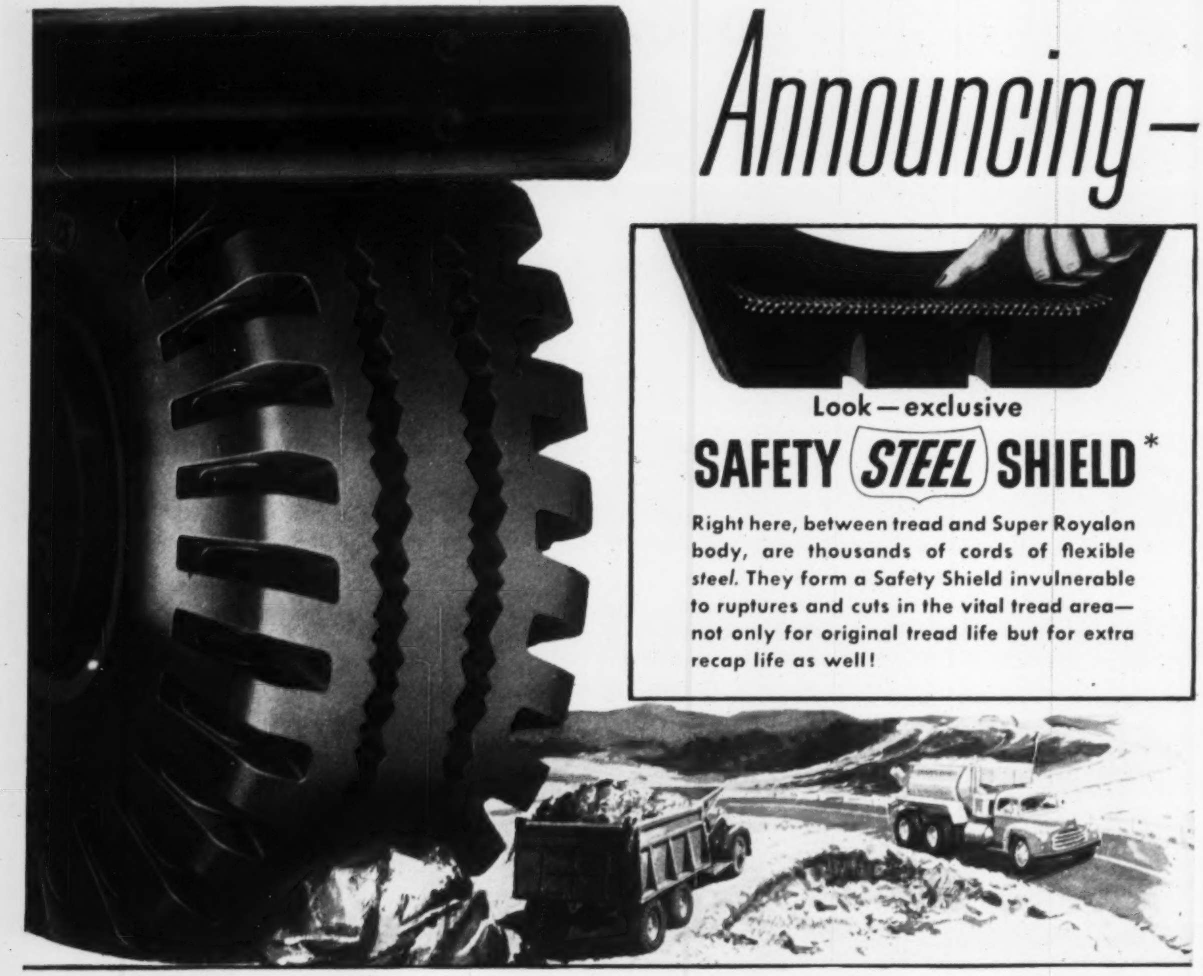


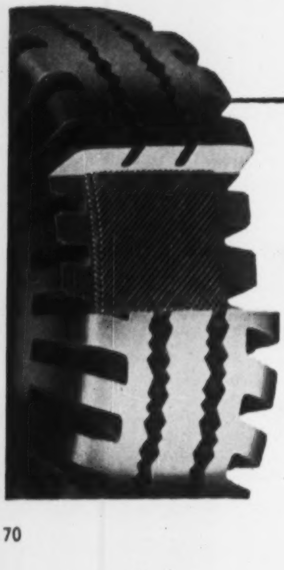
Announcing—

Look—exclusive

SAFETY STEEL SHIELD*

Right here, between tread and Super Royalon body, are thousands of cords of flexible *steel*. They form a Safety Shield invulnerable to ruptures and cuts in the vital tread area—not only for original tread life but for extra recap life as well!

NEW U.S.ROYAL



Additional Engineering Advances that save you money in the new Super Fleetmaster

- ★ New Cross-Braced Grooves—arrest cut growth
- ★ New Tri-Rib Tread—for increased stability, easier handling
- ★ New Multi-Edged Design—gives greater highway skid control
- ★ New, Deeper Shoulder Vents—dispel heat for cooler running
- ★ New Chemi-Balanced Tread Compound—resists cutting, chipping
- ★ New Wide-Angle Grooves—actually roll away from stones

AN ALL-NEW, ALL-WHEEL ON-AND-OFF-THE-ROAD TIRE

Invulnerable

to cuts and ruptures in the vital tread area!

You are looking at an entirely new kind of truck tire—the new U. S. Royal Super Fleetmaster. Its exclusive Safety Steel Shield makes it so immune to road hazards that it runs over spikes and razor-sharp axblades without losing a pound of air!

Put the new Super Fleetmaster on any wheel and watch it outperform! On front wheels, it gives greater stability. On drive wheels, it delivers extra traction. On trailing wheels, it lasts for recap after recap. *Standardize* on this great new tire—and reduce inventory expense!

Super FLEETMASTER

SAFETY STEEL SHIELD*

Mount this great new tire on dump trucks, transit mixers, log haulers... on any wheel exposed to heavy impacts, sharp objects, murderous terrain. You'll enjoy fewer tire failures, less downtime expense and greater service dependability.

Right now, your U. S. Royal Dealer has the new Super Fleetmaster with exclusive Safety Steel Shield in sizes through 11.00. See him—as soon as you can. And remember, you can specify "Super Fleetmaster" on your new equipment!

*Patent Applied For

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United States Rubber

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Power-Dome more than a name

. . . proves real gas saver, reduces upkeep, too . . .

How Chrysler Engineering Cuts Truck Operating Costs

by Jim Byers

When a new truck engine that promises more MPG and lower upkeep comes along, that's *news*.

But, naturally enough, fleet operators prefer not to go overboard in their praise of such new developments until they've proved them in actual operation.

That's the story of Chrysler Corporation's radically different Power-Dome V-8 combustion chamber, introduced in the 1954 Dodge C-1 series.

From the start, fleet men were agreed it looked great "on paper", but had to wait for a *factual* answer to the all-important question, "Will Power-Dome actually increase gas mileage, actually reduce maintenance costs?"

The answer to that question, after well over two years of service in fleets of all types the country over, seems to be an unqualified "Yes".

Owners of Series C-1, and the current C-3 Dodge V-8 trucks report remarkable gas savings and unusually low maintenance costs. They say they not only get more MPG (on regular fuel), but find engines maintain power and efficiency far longer than those of standard design.

In layman's language, here is how Chrysler engineers were able to give Dodge short-stroke V-8's these cost-cutting characteristics:

First, let's study the diagram below.

You'll notice, among other things, that the standard, wedge-shaped combustion chamber (Fig. 1) has corners where carbon can easily collect, whereas the Dodge Power-Dome chamber (Fig. 2) eliminates such power-stealing carbon hot spots.

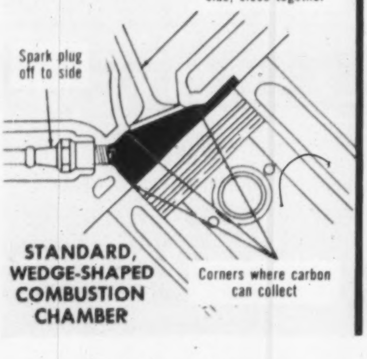
Next, notice the spark-plug location. In the Power-Dome design, it is centrally located, instead of off to one side. Flame travel, therefore, is uniform to all parts of the chamber; thus the fuel mixture is burned faster, more evenly, and more completely.

Valve placement, too, is unusual. In the Dodge Chrysler-engineered power plant, intake and exhaust valves are located on opposing sides. This permits use of larger valves for easier engine breathing, elimination of fuel waste.

In addition to Power-Dome, Chrysler engineers have incorporated other features in Dodge truck engines that contribute to their unusual operating economy. Among a number of such advancements not found in most competitive makes are floating oil intake, ceramic fuel filter, positive exhaust valve rotators and dual exhaust system as standard equipment.

In fact, Chrysler engineers have made "fleet economy" their theme throughout the designing of today's Dodge Job-Rated Trucks. The result is a full line of trucks any cost-conscious fleet operator would be wise to investigate before investing in a replacement or adding to his fleet.

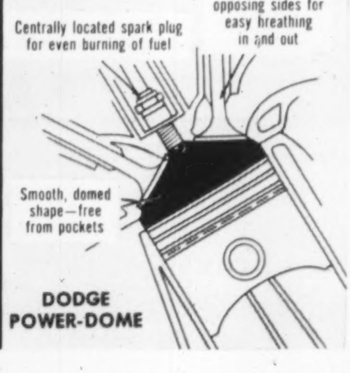
(Fig. 1)



Valves placed side by side, close together
Spark plug off to side
Corners where carbon can collect

STANDARD, WEDGE-SHAPED COMBUSTION CHAMBER

(Fig. 2)



Centrally located spark plug for even burning of fuel
Larger valves on opposing sides for easy breathing in and out
Smooth, domed shape—free from pockets

DODGE POWER-DOME

An advertisement for DODGE TRUCKS—the make with the *Forward* Look

Men and Jobs

Ebbs Second in Command of North Pacific Division

Col. Richard F. Ebbs has been appointed Executive Officer of the North Pacific Division Army Corps of Engineers in Portland, Ore. He succeeds Col. C. D. McDaniel who has been reassigned to the office of Chief Engineers as Inspector General.

Col. Ebbs' last assignment was with the Caribbean Command which included the 21 Latin American countries where he was in charge of all engineering operations for the command. During World War II he was Executive Officer of the Manhattan District at Hanford Engineering Works, Richland, Wash.

ORSANCO Charter Member Lloyd to Be New Chairman

Kenneth M. Lloyd, long-experienced in midwestern industrial and water-resources development, has been named chairman of the Ohio River Valley Water Sanitation Commission.

Lloyd's background in the development field dates from 1935, when he took over the legal and secretarial reins of the Mahoning Valley Industrial Council. He has also devoted major efforts to the cause of water developments on state and regional levels, serving as a member of ORSANCO since its establishment and as chairman of the advisory committee of the Ohio Water Resources Board since 1941.

Lloyd, a 1932 law graduate of the University of Michigan, is a life member of the advisory board of the St. Lawrence Seaway Development Corp.

Men and Jobs Briefs . . .

• **Associations**—The newly formed Consulting Engineers Association of Oregon elects as its first president **J. Donald Kroeker** of Portland, Ore. . . . **Norman T. Dudie** of Winston-Salem, N.C., is elected president of the Professional Engineers of North Carolina and **Marcus Durlach** of Columbia, S.C., is named president of the South Carolina Society of Professional Engineers.

• **Corps of Engineers—Col. Gerald P. McCarthy,** executive officer at the Corps of Engineer's school at Ft. Belvoir, Va., will take over as district engineer at Tullahoma, Tenn., July 5. He succeeds **Col. Lavonne E. Cox,** who will attend the air war college at Maxwell Air Force Base . . . **Lt.**

Just a squeeze sets the fastening stud in steel or concrete!

THAT'S HOW SIMPLE IT IS—a flex of the finger—to anchor fixtures securely with the Remington Stud Driver. Off goes the power load, the stud is anchored into steel or concrete—straight as an arrow. No predrilling or outside power source required!

You can set both ¼" and ⅜" diameter studs with the Remington Stud Driver—up to 6 studs per minute either size. There are 40 different styles and lengths of Remington Studs to choose from. With this *one* tool, you can take on *every* stud-fastening job—light, medium and heavy-duty—and save time and money on every one of them! Get full details by mailing coupon below.

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Rotovalve 55% closed at 25% stroke, and 92% closed at 50% stroke. In comparison, gate valves only 18% closed at 25% stroke and 43% closed at 50% stroke.

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For detailed information about SMS Rotovalves, Ball or Butterfly Valves, see our local representative or write to the S. Morgan Smith Company, York, Pennsylvania.

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AFFILIATE: S. MORGAN SMITH, CANADA, LIMITED • TORONTO

. . . Men and Jobs

Col. Leonard A. Wagner, who has been serving as post engineer at the Army Chemical Center in Maryland has been assigned to Sondrestrom Air Force Base in Greenland.

- **Col. Carl Y. Farrell,** District Engineer for the Corps of Engineers in Alaska, has a new assignment with Fourth Army Headquarters at Ft. Sam Houston, Tex., **Col. Pierre V. Kieffer, Jr.,** will take over the Alaska post in August after completing special military courses at the Army War College.

- **Careers**—The Wyoming Highway Department names **Thomas D. Sherard,** former administrative engineer, as deputy state highway engineer, **Ross G. Stapp** as state construction engineer, and **W. E. Sutton** as state maintenance engineer . . . **Alexander N. Diachishin** leaves the staff of the Interstate Sanitation Commission to join Leonard S. Wegman, consulting engineer in New York City.

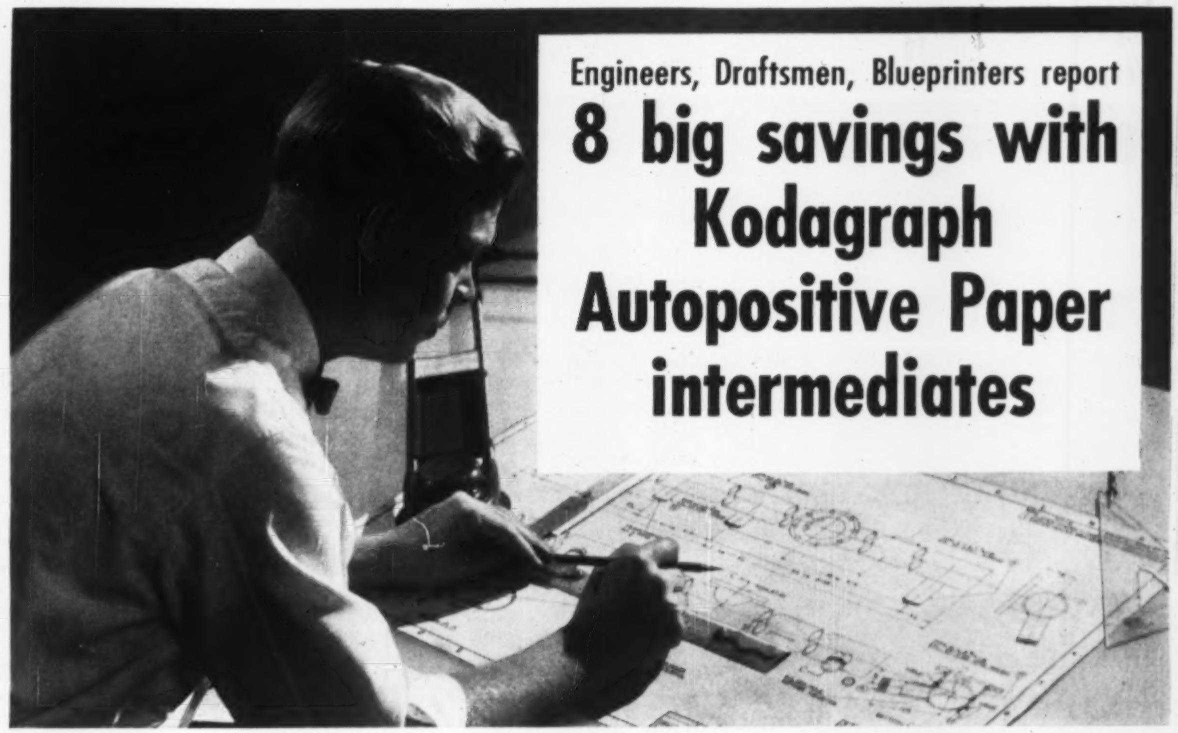
Obituaries

Charles Leonard Reeder, 79, retired consulting engineer, died in Baltimore July 18. A graduate of Johns Hopkins University, he established his own firm at the age of 20. In 1923 he went into partnership with John L. Eiser and Harry Akers, under the firm name of Reeder, Eiser and Akers. Mr. Reeder had a part in the construction of numerous buildings in the Baltimore area, including the Johns Hopkins medical school and hospital buildings, Mathieson Building, Enoch Pratt Free Library, University of Maryland Hospital, Scottish Rite Temple, Standard Oil Building, Gas and Electric Co. Building, Notre Dame College and the War Memorial Building.

Herbert A. Scattergood, 75, a consulting engineer, died July 4 at his home at Erlton, N. J. He was associated with Remington and Boyd, engineers of Pennsauken, N. J. At one time he was with the Pennsylvania Railroad. He was a graduate of Haverford College.

John H. Galligan, 67, a retired consulting engineer, died July 20 at Havertown, Pa. A former president of Galligan & Sewell, he was also associated with Galligan Bros. and the Marine & Galligan Co., Inc. He was at one time a faculty member at Drexel Institute of Technology.

(*Obituaries continued on page 76*)



Engineers, Draftsmen, Blueprinters report

8 big savings with Kodagraph Autopositive Paper intermediates

Revolutionary Kodagraph Autopositive Paper, which produces positive photographic intermediates *without a negative step or dark room handling,* brings these savings to drafting rooms large and small.

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2. **Reclaims drawings** which are old, worn, or soiled. Reproducing them on Autopositive Paper cleans up backgrounds, strengthens line detail . . . eliminates redrafting.

3. **Improves legibility of prints.** Blueprints or direct-process prints made from Autopositive Paper intermediates are consistently easier to read than prints made from original drawings.

4. **Reproduces "unprintable" originals.** When extra copies are needed of blueprints, drawings on opaque stock, two-sided originals, and other "unprintables," just reproduce them on Autopositive Paper *and you have your printmaking masters.*

5. **Speeds revisions of drawings.** A popular short cut is to cut out or eradicate detail on an Autopositive Paper intermediate . . . and then add the new detail to this print or one made from it.

6. **Eliminates redrafting standard component designs.** From a file of standard component designs made on Kodagraph Autopositive Film, select the ones needed and attach to drawing form with translucent tape. Then reproduce on Autopositive Paper, add new detail and the job is done.

7. **Simplifies print distribution.** Instead of shipping bundles of production prints, send Autopositive Paper intermediates. Mailing costs are saved. Required number of prints can be made at other end. No overstocking this way . . . or running short of prints.

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New illustrated booklet gives full story on Kodagraph Autopositive Paper, which you, or your local blueprinter, can process readily with existing printmaking equipment and standard photographic processing.

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of Technology.

(*Obituaries continued on page 76*)

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STANDARD DRY WALL PRODUCTS, INC.
NEW EAGLE, PENNSYLVANIA

. . . Obituaries

Langdon Pearse, 78, sanitary engineer of the Chicago sanitary district died July 20 at Winnetka, Ill. He joined the district in 1909 and served for the next nine years as a division engineer. He then became sanitary engineer of the district, in which capacity he had charge of development of the Chicago treatment facilities. Graduated from Harvard College in 1899, Mr. Pearse took graduate work in civil engineering at M.I.T.

George T. Richards, Jr., 64, a civil engineer who played an important part in the design of the Savannah River plant of the E. I. du Pont de Nemours and Company, died July 25. He received his degree from Princeton University in 1914. Following a career in the construction industry, Mr. Richards joined du Pont in 1940 and, since 1951, had been engaged in engineering for the company's atomic energy work for the government.

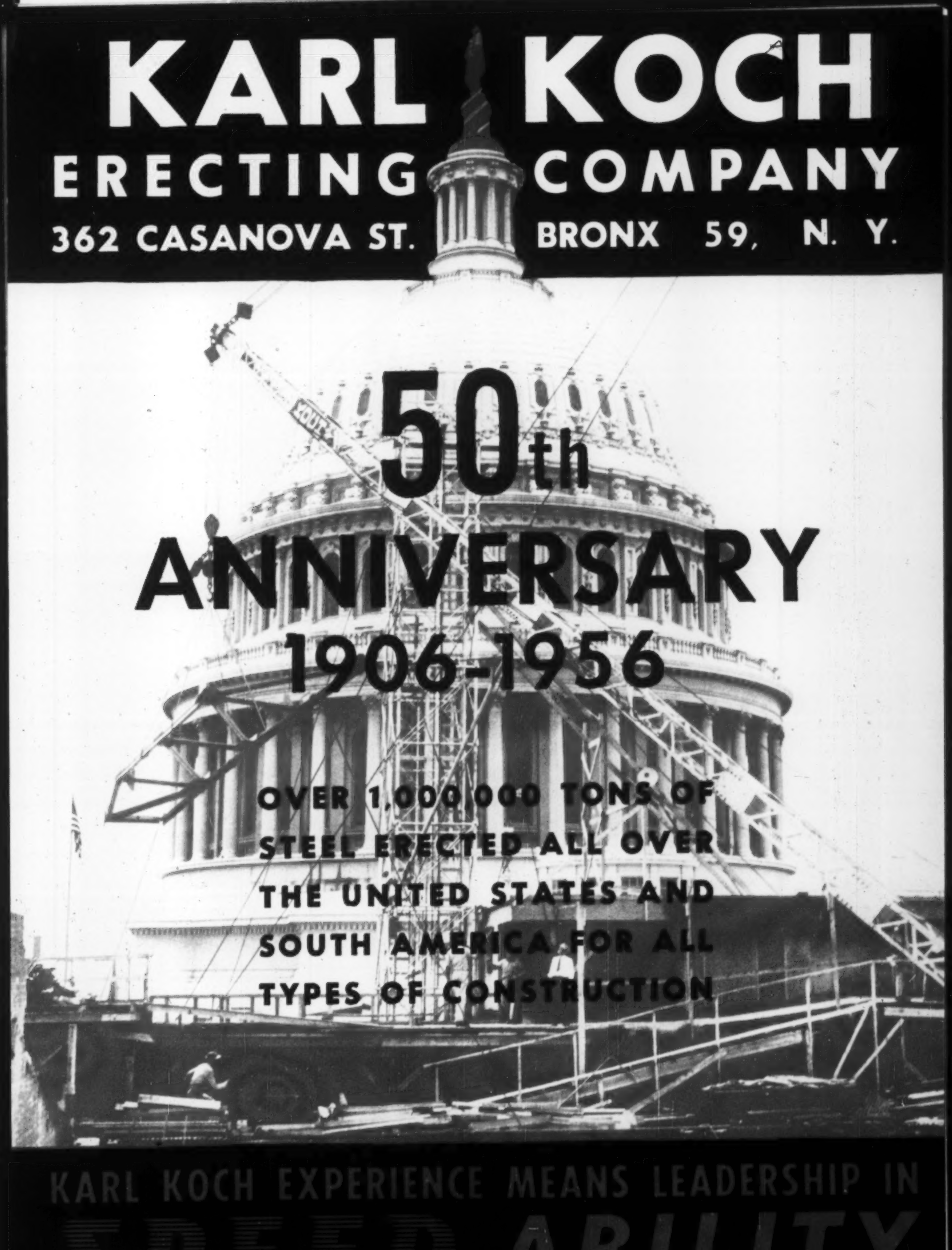
John G. Bedell, 40, consulting engineer who played a major part in planning expansion of New Orleans' Moisant International Airport, died early in July at New Orleans. A licensed private pilot, Mr. Bedell has been associated as a consultant with the New Orleans firm of Bedell and Nelson, and had been a key figure in plans for the Joint Air Reserve Training Center, New Orleans Airport, and fields at Baton Rouge, Bastrop and Bogalusa, La.

Eugene F. Griffith, engineer with the Sun Oil Co., died July 6 at Springfield, Pa. He attended McGill University and later studied architectural engineering at the University of Pennsylvania. Before joining Sun Oil in 1938, Mr. Griffith had been employed by the Philadelphia Board of Education.

John H. Brinkley, Jr., 31, Thomasville, N. C. bridge construction contractor, died recently, after being injured by a falling tree while at work on a highway bypass project near Greensboro.

Charles F. Weeber, 63, who directed construction of military bases in the Pacific for Hawaiian Dredging Co. during World War II, died July 11 at Honolulu.

John M. Broggini, 63, an engineer with the Philadelphia Water Department for 42 years, died July 3 at Philadelphia. He was a graduate of the Drexel Institute of Technology.



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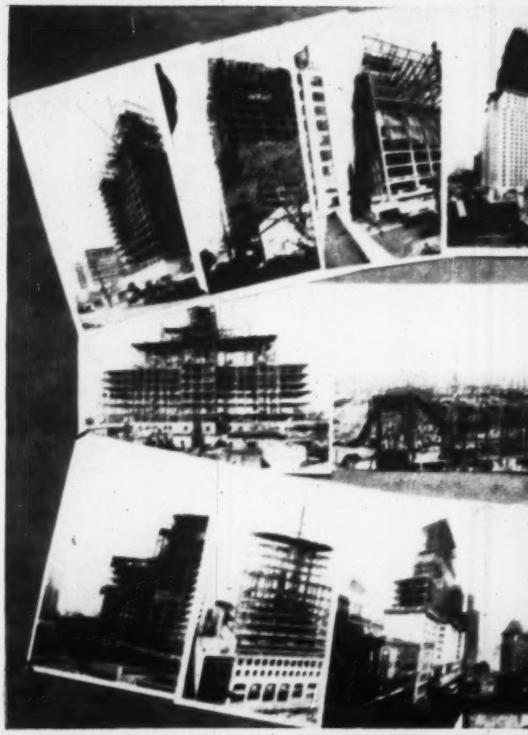
Karl Koch Company has erected all types of steel structures. In the past fifty years we have built bridges, towers for radio and television stations, government office buildings, hotels and post-offices, hangars, various military structures, and all types and sizes of industrial and commercial buildings.



WE CAN SOLVE YOUR PROBLEMS

Our organization is capable of solving all erection problems presented. We are constantly adapting new methods to increase speed and to lower erection costs to builders and contractors.

ORGANIZED FOR SPEED — LOCATION

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Koch Company was a pioneer in the erection of all-welded structural buildings. The General Electric Company Building in Pittsfield, Massachusetts, the addition to Mount Sinai Hospital in New York City and Hartford General Hospital are three of the many examples of all-welded structures erected by this Company. The General Electric Plant was the first fully all-welded shop and field project.

BRIDGES

Karl Koch Company has erected the following bridges:

HARRISON CROSSOVER	NEW JERSEY
BROAD CAUSEWAY	MIAMI, FLORIDA
PULASKI SKYWAY (sections)	NEW JERSEY
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LOWELL HIGHWAY BRIDGE	MASSACHUSETTS
NICKEL PLATE RAILROAD LIFT BRIDGE (under construction)	CLEVELAND, OHIO

and many others

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IN HEAVY STEEL ERECTION

REFERENCES

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Frank Messer & Sons
Atomic Energy Commission
at
Oak Ridge & Fernald, Ohio
Any and all U. S. Structural Steel Shops.

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Karl Koch also has rental equipment for all phases of steel erection and rigging. This includes truck cranes, crawler cranes, traveler cranes, hoists, derricks, erection towers, plank, air compressors, wrenches, riveting hammers and all associated miscellaneous tools.

AND TYPE OF WORK NO RESTRICTION

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Koch Company was one of the first steel erectors to use High Tensile Bolt connections in place of rivets on major structural work. This method was originally used at the Lederle Laboratory in Pearl River, New York. Our latest use of this steel connection was on the eighteen story addition to the U. S. Rubber Building at Rockefeller Center, New York, as well as many atomic plant installations.

WE SPECIALIZE IN MAJOR ALTERATIONS AND REBUILDING OF INDUSTRIAL PLANTS OF EVERY NATURE

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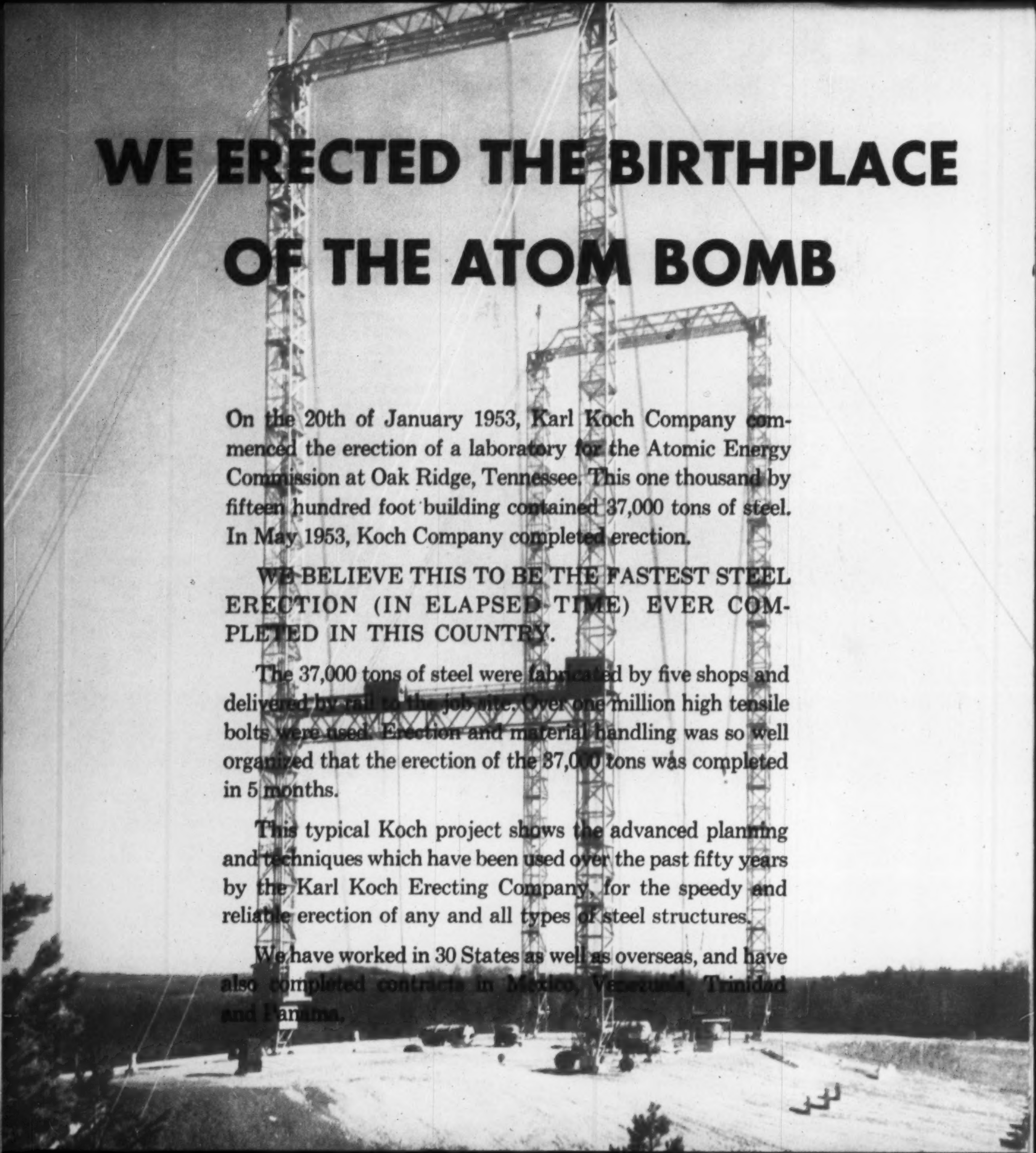

WE ERECTED THE BIRTHPLACE OF THE ATOM BOMB

On the 20th of January 1953, Karl Koch Company commenced the erection of a laboratory for the Atomic Energy Commission at Oak Ridge, Tennessee. This one thousand by fifteen hundred foot building contained 37,000 tons of steel. In May 1953, Koch Company completed erection.

WE BELIEVE THIS TO BE THE FASTEST STEEL ERECTION (IN ELAPSED TIME) EVER COMPLETED IN THIS COUNTRY.

The 37,000 tons of steel were fabricated by five shops and delivered by rail to the job site. Over one million high tensile bolts were used. Erection and material handling was so well organized that the erection of the 37,000 tons was completed in 5 months.

This typical Koch project shows the advanced planning and techniques which have been used over the past fifty years by the Karl Koch Erecting Company, for the speedy and reliable erection of any and all types of steel structures.

We have worked in 30 States as well as overseas, and have also completed contracts in Mexico, Venezuela, Trinidad and Panama.

KARL KOCH ERECTING CO.

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SPEED-ABILITY

Books

Practical Soil Mechanics

FOUNDATION ENGINEERING—By Rolt Hammond. 192 pp. Philosophical Library, Inc., New York 16, N. Y. $10.

Written by a British author, this book will be both interesting and valuable to U. S. engineers because he draws on experience with foundation design and construction in many parts of the world. Though he presents the fundamentals of soil mechanics, he places special emphasis on difficult and unusual problems, the solutions employed and the research that led to these solutions.

The book is chock-full of descriptions of techniques of one type or another used in various places—an unusual compaction method in France, determination of modulus of elasticity of rock by impulse measurements with a double-beam cathode-ray oscillograph in Iraq, site exploration with diamond drills in Ireland, shear-strength research in Great Britain's Building Research Station, driving of screw piles in Calcutta, to mention only a few.

A chapter on machine-foundations offers useful information on vibration control. It also refers to installations in many parts of the world, including the unique prestressed foundation for an eight-ton forging hammer in an International Nickel Co. plant at Huntington, W. Va. (ENR Dec. 11, 1952, p. 46).

Brief Specifications

STREAMLINED SPECIFICATIONS STANDARDS, VOL. II—Mechanical and Electrical—By Ben John Small and Louis Axelbank. 494 pp. Reinhold Publishing Corp., New York, N. Y. $10.

Designed to simplify the task of writing specifications, this book presents a series of forms for the mechanical and electrical services of buildings. The specification writer need only select the sentences, paragraphs or sections that fit his need, eliminate inapplicable material, fill in makes, sizes and quantities where necessary and perhaps change a few words. Particularly valuable is the brief form of the specifications.

Vol. I, dealing with architectural specifications, originally was issued in pad form. Vol. II is a bound volume, because production cost for the pads was high and the pad form did not prove to be worth the extra expense.

A valuable feature of the new volume is the numerous explanatory notes distributed throughout. Also

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  No need to shop around when you can get all your wants in this giant supermarket of paving products. If you *use* it . . . we *have* it.
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  Why carry a big inventory on low-need items? Stock only what you'll need—carry a more diversified stock—when you order under Presstite-Keystone's freight-saving "Mixed Carload Plan." Ask us about it.
- **ONE CONVENIENT INVENTORY & BILLING ACCOUNT**
  Less paper work, easier and faster handling, more net profits for you.
- **FAMOUS-NAME QUALITY**
  Two reliable names combine to bring you controlled quality, reliable delivery—and a personalized engineering service whenever you need it.

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Jack Cys, Denver, Col., contractor

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Save concrete and reinforcing steel . . . use low-cost SONOVOID Fibre Tubes to displace low-working concrete at the neutral axis without impairing structural strength! In the construction of floor slabs for The Boulder Life Insurance Co. Building, SONOVOIDS were used to eliminate the dead weight of concrete and to save materials and money.

Metal end closures were used in the SONOVOIDS. Special tie-down rods, with spacers attached, prevented the SONOVOIDS from "floating" and assured exact positioning prior and during the pour.

Easy-to-handle, low-cost SONOVOIDS are specifically developed for use in bridge decks, wall floor, roof and lift slabs; also in concrete piles. For poststressed or prestressed units or units cast in place.

Available in sizes from 2.25" to 36.9" O.D. up to 50' long.

Order in specific lengths or saw to your requirements on the job. End closures available.

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noteworthy is a section, "Mechanical and Electrical Requirements," which incorporates general information applying to all mechanical and electrical trades, cutting down on repetitions.

The authors believe that these requirements presented in this form will help minimize disputes among the trades.

Properties of Materials

HANDBOOK OF ENGINEERING MATERIALS—Edited by Douglas F. Miner and John B. Seastone. 1,380 pp. John Wiley & Sons, Inc., New York, N. Y., and Chapman & Hall, Ltd., London. $17.50.

This handbook is a compilation of the chemical and physical properties of engineering materials, with the objective of serving as a guide in their selection for specific purposes. More than 50 specialists contributed sections in their fields.

The book is divided into four parts. The first contains general information—specifications and standards, statistics, and mathematical and physical tables. The second and third present the properties of metals and nonmetals. And the fourth is devoted to construction materials.

The last discusses cementing materials and concrete, roadbed materials, timber, rope, soils, weather and moisture protection and glass products. Steel is covered under metals.

Presentation of data on structural steel is not very helpful, for some of the information is included under low-carbon steel (not cross indexed), while only tables of unit stresses and standard sizes of sections are referred to in the index. This is a minor weakness, however; the book is a very valuable reference work.

Concrete Textbook

DESIGN OF REINFORCED CONCRETE—By W. Boguslavsky. 428 pp. The Macmillan Co., New York, N. Y. $7.50.

This book is intended to be useful both to the beginner and the experienced engineer. Justification for its appeal to students appears to be primarily limitation of subject matter to fundamentals of concrete design and simple presentation. Engineers may value the book because of formulas and methods given that are either new or not very well publicized.

These features include formulas for designing slabs and beams that automatically include weight of the members; empirical formulas for estimating size and weight of footings; formulas for estimating cross-sectional dimensions of prestressed concrete beams and a graphical method for designing eccentrically loaded columns subject to tension.

Miscellaneous Notes . . .

- **Fluoridation practice** – The May 1956 issue of PURE WATER, published by Chicago's Bureau of Water, is devoted entirely (17 pages) to the fluoridation system at the South District Filtration Plant. It contains a wealth of practical information for plant operators such as determining feed of the hydrofluosilicic acid used, the sampling and testing procedure employed and a detailed safety program.

- **Information on 2-4-1,** a combined subfloor and underlayment panel, is given in a 28-page laboratory report. Supported on 48-in. centers, the new 7-ply panel, 1⅛ in. thick, is designed to carry all types of floorings from vinyl tile to oak strips. The laboratory report give engineering data, load tests and construction details. Load vs deflection charts are given in the back of the booklet. The report can be obtained by writing to Douglas Fir Plywood Assoc., Tacoma 2, Wash.

- **Warm-air systems** for heating dwellings with concrete-slab floors on grade were studied by the University of Illinois Engineering Experiment Station, under sponsorship of the National Warm Air Heating and Air Conditioning Association. Comparisons made include room-air temperature gradients, floor temperatures, pressure losses, fuel consumption and furnace and blower performances for five systems. The tests have led to a recommendation for an increase in feeders in radial systems. Published as Bulletin 434, the test report is available for 30 cents from the experiment station, Urbana, Ill.

- **Fire extinguishers** are classified for the first time since 1921 in the 1956 edition of Standards for the Installation and Maintenance of First Aid Fire Appliances, just published by the National Fire Protection Association. The standards detail the operation and maintenance of soda-acid, water, foam, vaporizing liquid, carbon-dioxide, dry-chemical, and wetting-agent extinguishers. Relative effectiveness is indicated for different kinds of extinguishers on flammable liquid and ordinary fires. Available in pamphlet form for 35¢ from the NFPA, 60 Batterymarch St., Boston, the standards will also be incorporated in the 1956 edition of the National Fire Code, to be published in September.

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for round columns of concrete

In the construction of this church in St. Paul, Minn., the footings for the supporting round columns of reinforced concrete were set well below grade. The use of low-cost SONOTUBES for column formwork made backfilling possible before pouring because stripping and recovery of forms was unnecessary. The SONOTUBES required no bracing as the backfill held them in place. Ready-mix trucks were able to move over the backfill to pour the columns, eliminating the necessity of hoisting the concrete to make the pour. The backfilling, before pouring, resulted in the use of less equipment, labor and material and stepped up construction time.

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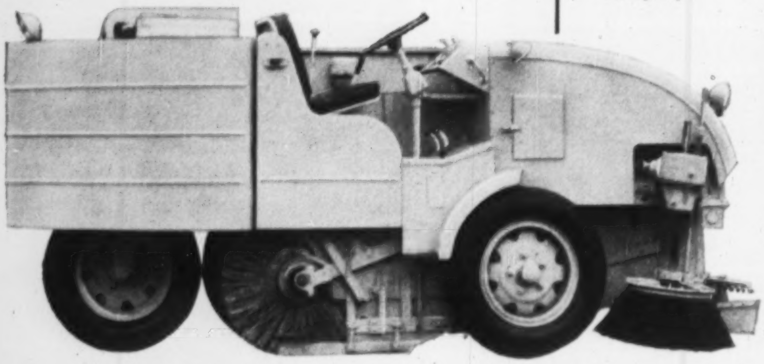

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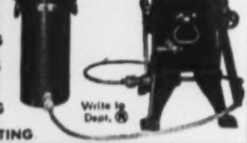

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Legal

Arbitration Held to Cover Sub Dispute Over Liability

A dispute over a sub's liability for damages to third parties caused during the course of construction is a proper issue for arbitration, if the contract contains a non-excepting arbitration clause.

The point was raised last year in a New York case that stemmed from a dispute between Merritt-Chapman & Scott Corporation, a member of a joint venture under a prime contract with the Tunnel Commission, and Sterling Foundations, Inc., one of the subcontractors.

The prime contract provided that the prime contractor would idemnify and save harmless the Tunnel Commission for whom the work was to be done "from and against all losses and all claims, demands, payments, suits, actions, recoveries and judgments of every nature and description brought or recovered against the Commission, by reason of any act or omission of the said contractor, his agents or employees, in the execution of the work and the guarding of it."

The prime contract also contained the following provision: "15. Arbitration—Any dispute arising hereunder (except a dispute involving an order, direction or decision of the Engineers which shall be otherwise disposed of as specifically provided in the Contract Documents), shall be disposed of by arbitration in New York, under the rules then obtaining of the American Arbitration Association."

Both provisions of the prime contract were incorporated in the subcontract.

During the course of construction, property in the vicinity of the work was damaged. As a result, the owner of the damaged property brought an action against the Tunnel Commission and the prime contractor to recover the damages sustained. The prime contractors made demand on the subcontractor, as a result of whose work the damage resulted, to undertake the defense of the actions, which it refused to do. The matter was then settled for $8,000. Merritt-Chapman & Scott contributed $4,000 and then made demand on the subcontractor for reimbursement and for arbitration as provided for in the contract.

The subcontractor, after the receipt of the demand for arbitration, instead of complying therewith, brought

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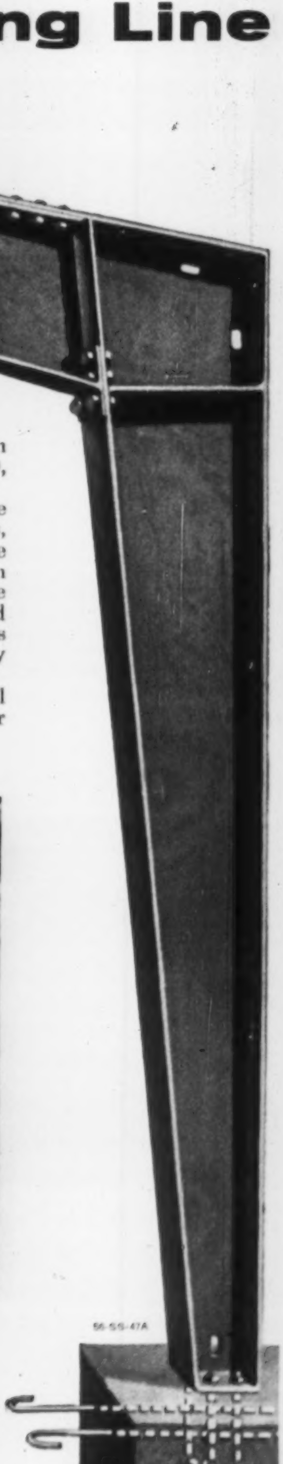

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Under this smart appearance is a rugged steel structure. At the peak and knee, the continuously welded Rigid Frame I-section steel plate beams are securely bolted together. The frame is designed to put the assembly bolts primarily in *shear* rather than *tension*. At the foundation, each column is permanently bolted. Stran-Steel Rigid Frame buildings are clear-span structures available in widths of 40, 50, 60, 70, and 80 feet, and multiples thereof.

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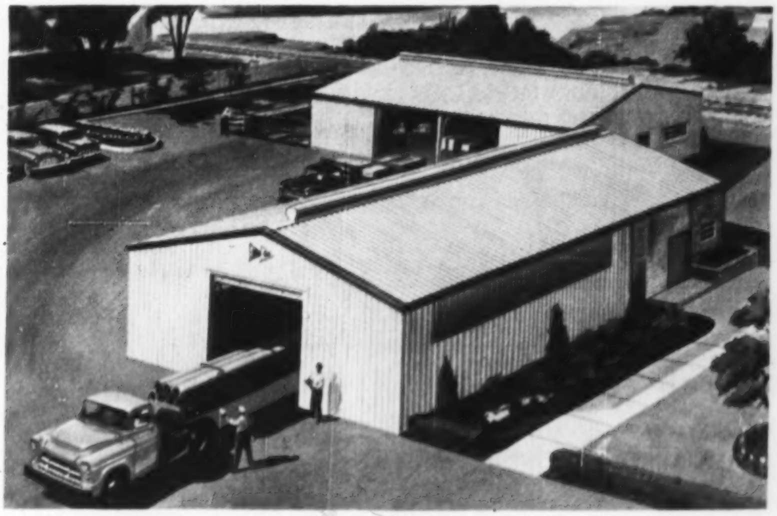
For complete engineering details, call your local Stran-Steel dealer or send for the new Industrial Buildings Catalog.



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a court action to determine its liability under the contract to indemnify the prime contractor for the partial payment made by one of the prime contractors, contending that under the provisions of the contract it was not required to proceed with or take part in the demanded arbitration.

The prime contractor made an application to the court to dismiss the action or, in the alternative, for an order staying the trial of the action until arbitration of the controversy had been heard. The court held that under the provisions of the contract, the dispute in question was a matter to be settled by arbitration and stayed the action brought by the subcontractor.[1]

The court stated: "Similar matters have arisen before in the federal courts. The arbitration clause itself in this case leaves no doubt that any dispute arising under the contract shall be disposed of by arbitration in New York under the rules obtaining of the American Arbitration Association. The only stated exception in the arbitration clause which has been quoted herein before is 'a dispute involving an order, direction, or decision of the Engineers which shall be otherwise disposed of as specfically provided in the Contract Documents.'"

(1) Sterling Foundations, Inc. v. Merritt-Chapman & Scott Corp., 134 F. Supp., 327, U.S. District Court, E.D., N.Y., Sept. 28, 1955.

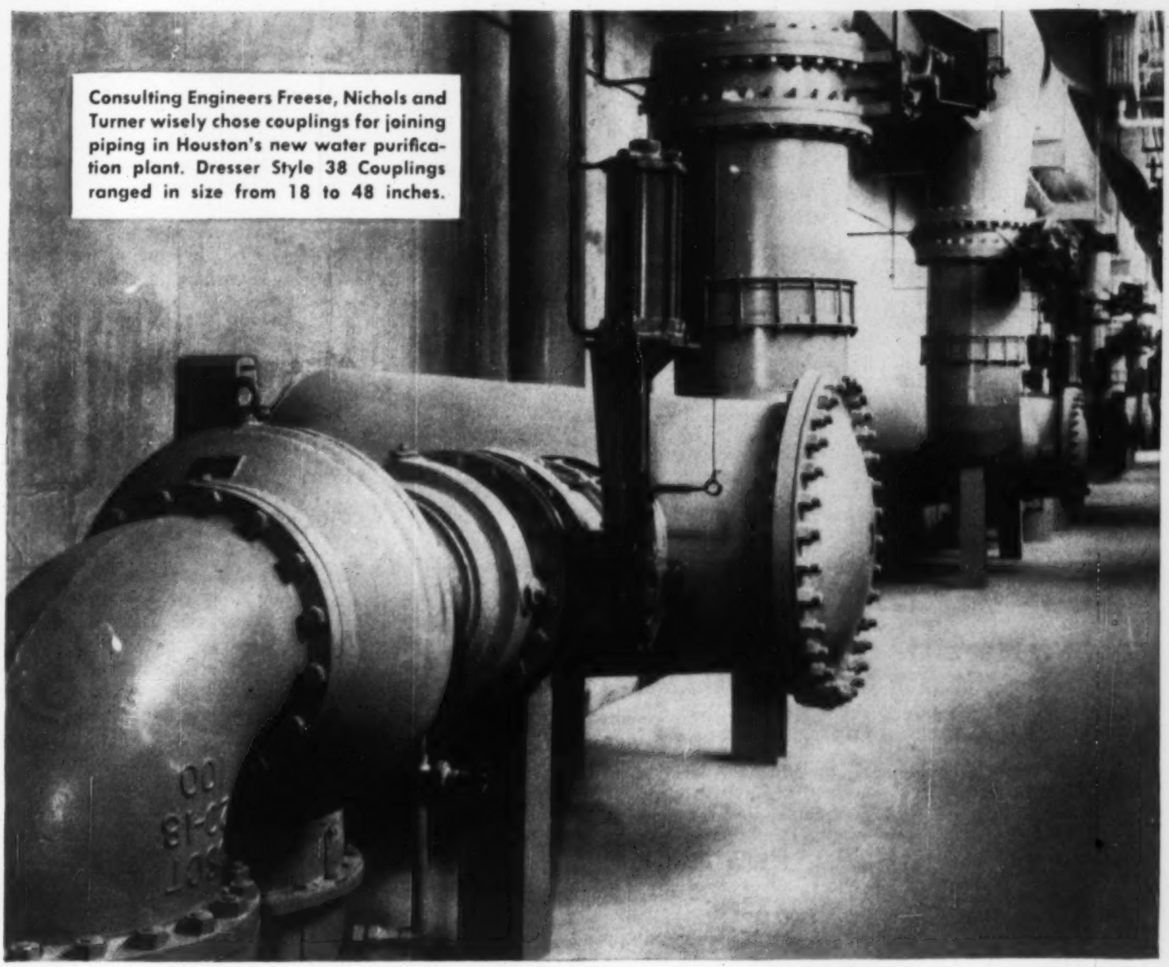
Contractor May Recover For Architect's Delays

A contractor may recover the increased cost of work resulting from the architect's failure to furnish promptly detailed drawings as required by the contract.

In a California case, the work was to be performed on a cost-plus basis with a stipulated upset price. The architect's delay in furnishing the plans increased the cost of the work to such an extent that it exceeded the upset price. In an action to recover the excess cost, the contractor was allowed a recovery.[1]

"It is elemental," the court said, "that one whose own fault prevents performance by the other party to the contract cannot take advantage of a breach induced by his own conduct."

[Comment: Many years ago, Mr. Werbin, who contributes this column, represented a contractor to construct part of New York City's subway system. The contract provided that the city would furnish working drawings within 30 days after the award of the



Consulting Engineers Freese, Nichols and Turner wisely chose couplings for joining piping in Houston's new water purification plant. Dresser Style 38 Couplings ranged in size from 18 to 48 inches.

Houston solves piping problems for good

Steel pipe and Dresser Couplings provide flexible installation, easy accessibility

Houston's new water purification plant, a part of the San Jacinto River Water Project, integrates some of the latest developments in industrial design with time-proved principles of municipal water treatment.

The new plant reflects the wise use of steel pipe and mechanical couplings where weight, price and greater flexibility are important factors.

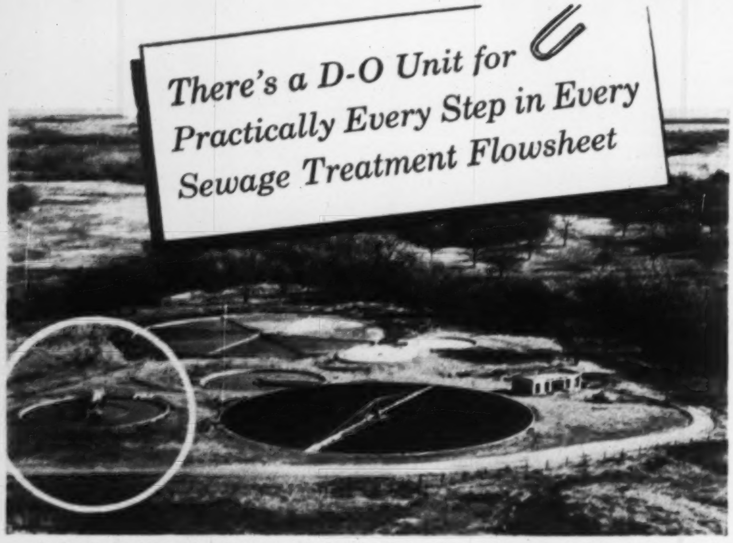
Consulting Engineers Freese, Nichols and Turner of Houston specified Dresser Couplings teamed with steel pipe "to provide for expansion and contraction of long runs of pipe, to provide for flexibility in the installation and possible future dismantling of large pipe assemblies, and to connect steel pipe to concrete hydraulic structures."

Whenever you join pipe — especially near valves or any type of mechanical installation — provide easier installation and permanence with safe, sure Dresser Couplings.

Regardless of vibration or expansion-contraction, the resilient gaskets in Dresser Couplings hold bottle-tight for life. This built-in flexibility, particularly important between rigid flanges, serves to prevent piping strain from reaching valve casings and working parts. Result: greater efficiency, longer life.

Installation with Dresser Couplings requires only a wrench, is fast and simple. You can forget time-consuming procedures because Dresser Couplings compensate for slight misalignments, facilitate installation of set, rigid equipment on piping. These couplings also permit easy entrance into lines for maintenance or repair of equipment.

No other method of pipe joining provides all these proved advantages. Make sure you have foolproof, leakproof Dresser Couplings on your next water, sewerage or industrial project. For complete information, call your local piping supply house or write Dresser Manufacturing Division, Bradford, Pa. Sales offices in: New York, Philadelphia, Chicago, S. San Francisco, Houston, Denver, Toronto and Calgary.


There's a D-O Unit for Practically Every Step in Every Sewage Treatment Flowsheet

Aerial view of the Ada plant taken in 1954 shortly after starting up. Clariflocculator unit at left. Consulting Engineer: Ralph W. Delaney, Ada, Oklahoma.

DORRCO CLARIFLOCCULATOR

Used in New Ada, Oklahoma, Plant

LOW RATE TRICKLING FLOWSHEET

Typical of many U. S. cities, the problem of a steady growth of population in Ada, Oklahoma, resulted in badly overloaded sewage treatment plant facilities. By the late 1940's, it was apparent that the original plant built in 1939 was completely inadequate to handle the increased flow. Rather than expand existing facilities, studies made by the city indicated that it would be more economical to build an entirely new 3 MGD plant.

In designing the plant, Consulting Engineer Ralph W. Delaney of Ada, Oklahoma, incorporated a 70 ft. dia. Dorrco Clariflocculator mechanism in the flowsheet to handle the flocculation and clarification steps. In addition to this combination unit, equipment at the Ada plant includes a Dorr Detritor unit for grit removal, a 168 ft. dia. Dorrco Distributor for low rate trickling filter treatment, a 75 ft. dia. Dorr Clarifier and a Dorr Multdigestion System.

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contract. Without these working drawings the contractor could not order the steel needed for the job. There was a delay of over a year before some of the working drawings were furnished. In the meantime, cost of labor and materials increased considerably, resulting in greatly increased cost of the work. The claim of the contractor for such increased cost was settled by the city without suit for $328,000.]

(1) Griffith Co. v. San Diego College for Women, 280 P. 2d 203, Court of Appeals of Cal., March 25, 1955.

Allowed Liquidated Damages After Work Was Accepted

Acceptance of work is not a waiver of liquidated damages if the owner has withheld part of the money due the contractor.

Here's an example. A contractor sued to recover the amount he claimed was due under a contract and asserted that the municipality for which the work was done had waived any claim it might have for liquidated damages for delayed performance by accepting the work. The final estimate showed a balance of $4,002.80 due the contractor. The village for which the work was done paid the contractor $2,456.21 and retained $1,546.59. The work was not completed on time and the village was willing to accept the amount retained as liquidated damages. However, when the contractor brought the action to recover the sum so retained, the village counterclaimed the full amount of liquidated damages to which it was entitled under the contract.

Said the court: "Payment in full of the contract price and acceptance of the work by the village would constitute a waiver of such damages. Hubbard v. Norton, 28 Ohio St. 116. This was not done in the instant case, but, on the contrary, the village retained a part of the last estimate and thereby asserted its right to claim such damages. The mere fact that the village did not claim the full amount of damages provided in the contract in the first instance is not a bar to a later claim for such amount. Furthermore, if a party to an action wishes to prove a waiver upon which he relies, he must plead it. Globe Indemnity Co. v. Wassman, 120 Ohio St. 72, 165 N.E. 579." The village was allowed a recovery for the full amount due it under the provisions of the contract.[1]

(1) Snyder v. Village of McArthur, May 2, 1955, Court of Appeals of Ohio, May 2, 1955.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

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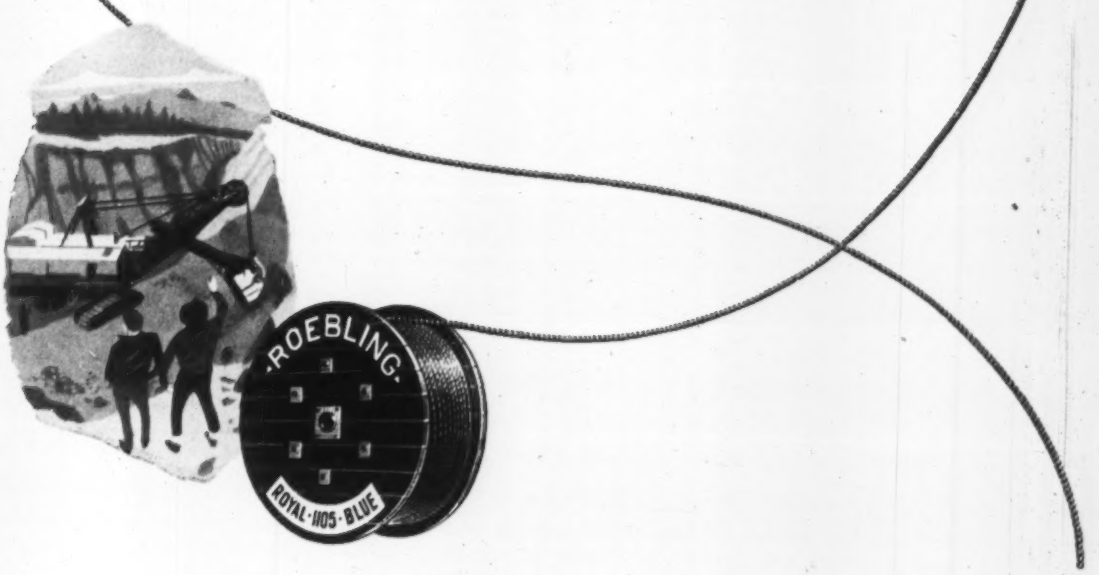

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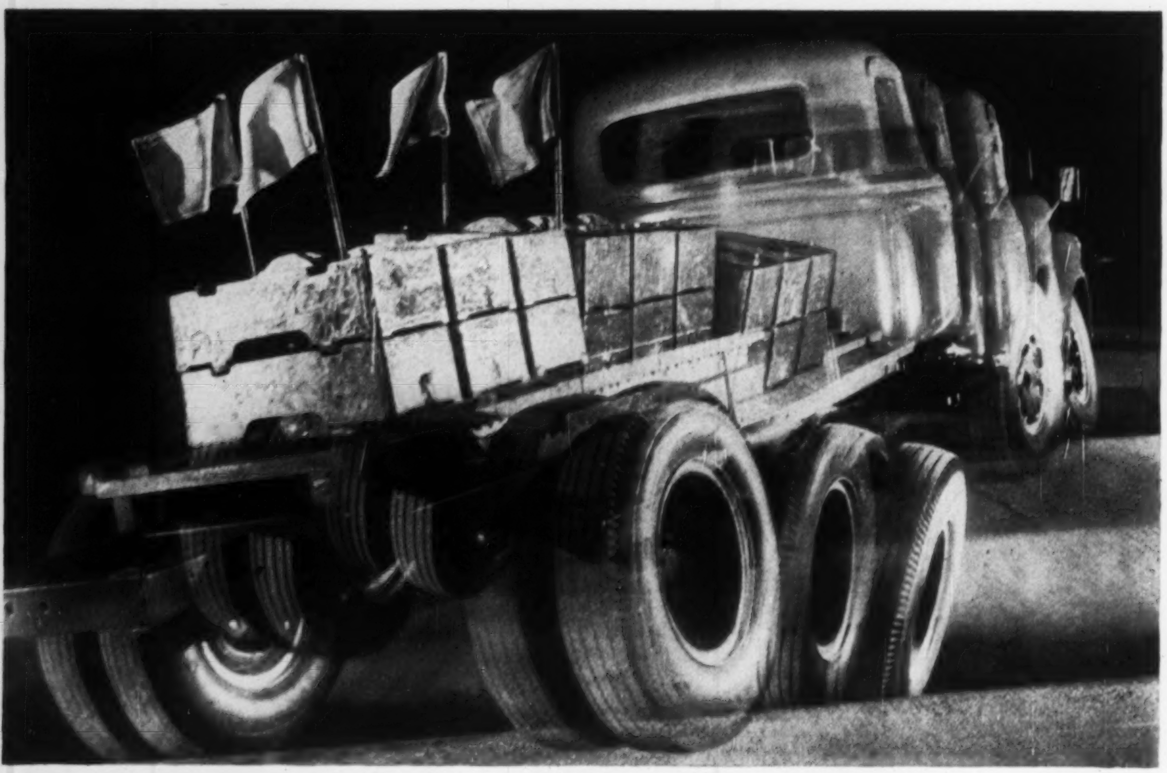

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Unit Prices

Oregon Sewer System Includes Treatment Plant

Two contracts totalling $249,773 for this sanitary sewer system will cover 36,675 lin ft of concrete pipe plus treatment plant with equipment. Of the total, $128,451 will go for the plant, including $25,530 worth of equipment, and $121,322 will go for lines. This Winston, Ore. project designed by Cornell, Howland, Hayes & Merryfield, Corvallis, Ore., will have a capacity of 0.5 mill. gal and serve a population of 3,500.

Equipment bids were based on two to five alternates for different makes.

Henry Den Herder, Lebanon, Oregon, won the contract for the treatment plant. His price topped the engineers' estimate by 3.4% and was 2.1% below the second low bid.

The sewer contract went to E-W Construction Co., Inc., Eugene, Oregon, at a bargain price, 20% below the engineers' estimate. This was 6.2% below the second low bid.

Sanitary Sewers

1C	E-W Const. Co., Inc., Eugene, Oregon	$121,322
2	Coast Const. & Excav. Co., Eugene, Oregon	129,346
4	J. R. McAllister, Roseburg, Oregon	179,943
EE	Cornell, Howland, Hayes & Merryfield, Corvallis, Oregon	151,545

Bids: 5-25-56 Items		Unit	Quantity	Unit Prices 1 C	2
Excav, trench & bkfl C, 0-6′		lf	20,490	$0.50	$0.70
6-8′		lf	9,378	0.65	0.80
8-10′		lf	3,015	0.90	1.00
10-12′		lf	145	1.75	1.50
12-14′		lf	75	2.00	2.00
14-16′		lf	25	2.50	4.00
16-18′		lf	25	3.00	5.00
& bkfl D, 0-6′		lf	650	1.25	1.75
6-8′		lf	587	1.90	2.30
8-10′		lf	335	2.25	3.15
10-12′		lf	25	3.45	3.80
rock		cy	1,400	4.00	5.00
Gravel base		lf	34,675	0.20	0.15
for base stabilization		cy	50	5.00	3.00
Pipe, conc, B & S, 6″	ip	lf	4,234	1.10	1.10
8″	ip	lf	23,521	1.35	1.40
10″	ip	lf	180	1.70	1.80
12″	ip	lf	1,613	2.00	1.95
15″	ip	lf	4,007	2.50	2.55
ACP, cl 100, 6″	ip	lf	1,140	2.20	2.50
Tee, conc, 6x6x6″	ip	ea	60	2.00	3.40
8x8x8″	ip	ea	303	2.50	4.00
12x12x12″	ip	ea	8	3.25	6.00
15x15x6″	ip	ea	26	4.40	8.00
Plugs, conc, 6x8″	ip	ea	12	0.50	0.50
Connections, service	ip	lf	7,765	1.80	1.50
Cleanouts	ip	ea	10	17.00	35.00
MH, std, precast, 0′-6′		ea	92	120.00	135.00
drop, 0′-6′		ea	6	150.00	175.00
Additional depth		lf	85	13.50	11.00
MH, spec, A		ls	job	800.00	1,500
B		ls	job	140.00	200.06
C		ls	job	150.00	200.00
D		ls	job	140.00	200.00
Pave, asph, remove		lf	310	2.00	1.00
Gravel, replace		cy	1,025	3.25	3.00
Outfall structure		ls	job	300.00	250.00

Time to complete IC: 210, 2: 180, 4: 320 calendar days
Liquidated damages: $50.00 per day

Sewage Treatment Plant

1C	Henry Den Herder, Lebanon, Oregon	$128,451
2	E. L. Wiggins, Portland, Oregon	131,201
3	John Kovtynovich, Eugene, Oregon	147,723
EE	Cornell, Howland, Hayes & Merryfield	124,204

Bids: 5-25-56 Items	Unit	Lump Sum Prices 1 C	2
Comminutor, Chicago Pump Co.	ls	$2,075*	$2,022
Alt: Worthington	ls	2,400	
Inflico	ls		2,790
Sludge pump, Carter	ls	1,182*	1,097
Alt: Inflico	ls		1,206
Clarif mechanism, 2, Process Engrs	ls	10,850	11,673
Alt: Walker Process	ls	11,950	12,733
American Well	ls	12,118	
Dorr-Oliver	ls	10,360*	11,729
Lakeside	ls		
Chlorin equip, Wallace & Tierman	ls	1,256	1,206
Alt: Fischer-Porter	ls	1,112*	916.00
Everson	ls	1,650	1,943
Raw sewage pumps, 2, Chicago Pump	ls	2,413*	2,504
Alt: Peerless	ls	2,756	2,881
Worthington	ls	2,350	
American-Well	ls		2,961
Digester mix equip, Process Engrs	ls	4,511*	4,926
Alt: Dorr-Oliver	ls		5,000
Walker-Process	ls	4,980	5,183
American Well	ls	4,810	
Trickling filter pump, Pacific (Layne-Bowler)	ls	1,710*	1,568
Trickling filter distributor			
Walker Process	ls	2,167*	2,037
Pacific Flush Tank	ls	2,800	2,624
Dorr-Oliver	ls	2,370	2,055
American-Well	ls	2,515	2,600
Treatment plant, 20 x 20′	ls	102,921	104,458
Unit prices for adjustments			
Excavation and backfill	cy	3.50	1.50
Gravel backfill	cy	2.50	2.00
Concrete in place	cy	60.00	70.00
Reinforcing steel in place	lb	0.13	0.16

Time to complete IC: 300 days

* Contract price for equipment

Ohio Water Line Shows Wide Range in Bids

Although end results were only 9,500 apart on a $52,242 low bid for a 8,825-ft cast iron water line for Hamilton County, Ohio, the eight bidders were miles apart on some of the smaller items.

For example, prices for class D castings ranged from $0.02 to $550 per ton with the low bidder using the high in this range. The lump sum item for connecting an existing water main ranged from $1 to $700.

This illustrates a major problem in using unit prices. They represent prices that contractors are willing to work for, but not necessarily an accurate measure of the cost of performing the section of the work they cover.

George M. Lemmel is sanitary engineer for Hamilton County. Charles F. McCurdy, of Cincinnati, Ohio, took the contract on his low bid which was 16.3% below the engineer's estimate, 4.5% below the second low bid.

The contract calls for class C or 250 cement lined cast iron pipe.

1C	Charles F. McCurdy, Inc., Cincinnati, Ohio	$52,242
2	McCloud & Alvernisso	54,710
8	Bond & Sheehan, Cincinnati, Ohio	61,726
EE	George M. Lemmel, Sanitary Engr, Cincinnati	62,421

Bids: 5-22-56 Items	Unit	Quantity	Unit Prices 1 C	2
CIP, cl C, 6″	lf	210	$3.40	$3.60
8″ i	lf	8,825	4.45	4.60
Castings, cl D	t	5.722	550.00	450.00
Gate valves & chamb. 8″ i	ea	11	220.00	250.00
& boxes 6″ i	ea	21	70.00	90.00
Connection to exist WM	ea	1	1.00	75.00
Air cock in chamber	ea	2	10.00	15.00
Fire hydrant, 3-way, 6″, i	ea	21	190.00	230.00
Sidewalk, conc, repav, 5″	sf	15	0.60	1.25
Gravel, bank run of pea	t	600	2.00	2.00

Time to complete: 180 calendar days

How to spot legal problems in construction contracts

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Materials and Labor Prices Monthly Market Quotations by ENR Field Reporters

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CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.•e truckload del.•g per block		CONCRETE Ready Mixed 1:2:4 ave. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$4.12a	$3.71a	$3.55	$2.75	$2.75	$2.50‡	$2.14	$2.24	$1.45	$1.65	$0.19	$0.195	$14.25g
Baltimore	4.04a	3.63a	3.43	2.70‡a	2.70‡a	2.20‡a	2.75‡a	2.80‡a	1.95‡a	1.90‡a	.18	.18a	12.15
Birmingham	3.73	3.00af	....	2.53n	2.53n	2.13n	2.75	2.75	1.55	1.65	.18	.18	11.55
Boston	4.75be	4.29a	4.55e	3.00a	3.00a	3.00a	1.65a	1.75a	....	....	.23	.275a	14.00h
Chicago	3.98a	3.57a	3.72	3.60‡b	3.60‡b	4.00‡b	3.95‡b	3.95‡b	2.25‡	2.25‡	.24	.24b	13.50
Cincinnati	4.22c	3.81c	3.90	2.19‡c	2.24‡c	2.24‡•	2.54‡c	2.54‡c	....	....	.205	.25a	12.40
Cleveland	N.A. in C.L.	3.59	....	2.15ef	1.95f	1.65	4.30‡a	4.30‡a	3.30‡a	3.30‡•	....	.23	16.15
Dallas	3.35a	2.95a	3.23	2.42	2.53	1.84	2.22	2.38	....	....	.11e	.2675	11.25
Denver	4.59a	4.09a	4.59	1.90	2.05	1.20	....	....	....	....	.22	.243a	10.70
Detroit	4.10a	3.45a•	3.73	4.25‡b	4.25‡b	4.00‡b	3.75‡	3.75‡	3.50‡	3.50‡	.23	.22a	14.20
Kansas City	4.30b	4.10b	4.10	1.65	1.65	2.10‡a	2.00‡a	2.00‡a	....	....	.20a	.24c	13.00b
Los Angeles	5.12ch	4.66ch	5.60	2.41‡a	2.76‡a	2.41‡a	2.41‡a	2.46‡a	....	....	.145fm	.255m	12.96ih
Minneapolis	4.49a	4.08a	3.99	2.70‡ag	2.70‡ag	1.60‡ag	3.25‡ag	3.25‡ag	....	....	.19	....	15.10f
Montreal	3.11d	2.86d	3.50	1.95‡a	2.20‡a	2.25‡a	1.95‡i	2.20‡i	....	....	.20	.20a	10.80ek
New Orleans	3.55a	3.15a	3.48	2.44	2.44	2.00	....	....	1.45	1.65	.275	....	13.65
New York	4.41a	4.00a	3.73	3.05bk	3.05bk	2.00bk	2.90bl	2.90bl	....	....	.25	.30b	15.70an
Philadelphia	3.88/4.27‡a	3.57/3.94‡a	3.49/4.12‡	2.85‡op	2.85‡op	2.35‡op	2.70‡	2.80‡	2.00	2.35	.22/.28	....	13.20de
Pittsburgh	4.15a	3.76a	3.75	2.40‡	2.40‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.25d	.31	14.00
St. Louis	3.86/4.18c	3.46/3.78c	3.71/4.03	3.25am	3.10am	2.40/3.10am	1.60j	1.70j	....	....	.22	.28c	12.90
San Francisco	4.03c	3.59c	....	2.02	2.02	2.12	2.17	2.17	....	....	.24	.28cl	12.50c
Seattle	4.30a	3.75a	....	4.00‡bm	4.00‡bm	4.00‡bm	4.50‡bm	4.50‡bm	....	....	.26	.37	13.30j
Toronto	3.97	3.77	3.77	2.25‡	2.25‡	1.85‡	2.00	2.00	2.00	2.00	.25	.31c	14.15

‡ Delivered. * Prices incl. dealers discount except as noted.

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Bath, Pa	3.05†	Waco, Tex. (+ 10¢ tax)	3.10†	Detroit, Mich	3.15†	Cleveland, O	3.20†	W. Winfield, Pa	3.20†
Lesley, Pa	3.05†	Giant, S. C	3.25†	Howes Cave, N. Y	3.05†	Alsen, N. Y	3.05†	Security, Md	3.05†

† *Prices to hold for Third quarter of 1956.*

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	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	......	......	......	$27.60	$40.00	$0.15	$0.25	$0.114Pw	$0.276Pw	$0.15	$0.15	$0.25
Baltimore	150.00‡	......	......	21.00i	......	.085i	0.175i	.09iwE	.18iwE	.09i	.095i	0.185i
Birmingham	......	62.00i	......	......	......	......	......	......	......	......	......	......
Boston	......	......	......	22.00ap	35.00ap	22.00av	30.00av	.095aFw	.195aFw	.095a	.095aG	.175aG
Chicago	150.00‡	85.00‡b	3.95/4.00‡j	21.85b	31.85b	20.85bv	30.85bv	.10bwH	.18bwH	.08b	......	......
Cincinnati	......	......	......	......	......	......	......	......	......	......	......	......
Cleveland	......	82.00d	5.60g	23.00A	......	23.00A	......	.1025AwF	......	......	.1025AG	.20AG
Dallas	e	40.00	e	24.45	43.19	.1030	.1858	28.91	50.44	.098	.1087	.1960
Denver	......	50.00	......	......	......	......	......	......	......	......	......	......
Detroit	......	112.00	......	29.65	......	29.65v	......	.1285wI	......	.1026	......	.25
Kansas City	e	e	e	7.00d	......	18.60v	......	.085•wJ	......	.075c	0.125	......
Los Angeles	e	......	e	18.50dmx	......	18.50dvx	......	20.00dx K	......	19.00dv	.09j	.19j
Minneapolis	......	......	3.17h	26.50	......	25.00	......	0.115w	......	0.105	.1242	......
Montreal	e	e	e	27.00n	39.60n	.135n	.198n	16.90nuE	20.90nuE	.132n	.197ns	.239ns
New Orleans	......	......	......	17.60e	......o	17.60ev	......o	.085ew	......o	.085B	.09BL	......
New York	......	......	3.70f	23.89qCD	44.56qD	23.89tCD	44.56tD	.1073wCDF	.1939wDF	......	.1073CD	.1939D
Philadelphia	175/185	110/120	4.06	22.00	......	22.00	......	.095uF	......	.095	......	......
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00E	40.00E	.098	.11	.224
St. Louis	......	......	......	20.63O	......	.1764	......	.0925fwM	......	0.16	.105	......
San Francisco	......	70.00c	......	20.50g	37.50g	20.50gkv	37.50gkv	21.50g N	39.00g N	21.25xv	.0925y	.1825v
Seattle	......	......	......	24.50z	38.50h	18.75hv	......	26.00 K	......	22.25hv	.0925h	.1025hr
Toronto	......	......	4.40	33.80	55.14	0.19	0.24	0.20w	0.25w	0.20	0.20	.24

‡ Delivered.

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ASPHALTS: •a Price at plant, Everett, Mass. •b F.o.b. refinery, Lockport, Ill. •c F.o.b. Sugar Creek, Mo. •d F.o.b. refinery, El Segundo. •e F.o.b. Baton Rouge. •f F.o.b. Hartford, Ill. •g F.o.b. Richmond, Calif. •h F.o.b. Martinez. •i F.o.b. refinery, Baltimore. •j F.o.b. refinery, Inglewood, Calif. •k 50–110 penetr. •l Less than 100 penetr. •m 40/80 penetr. •n Fed. tax included; add 5% for mun. & prov. •o Drums not avail. Shipped in steel bbl. •p 60/70 penetr. •q 40/85 penetr. •r In customer's drums. •s Shipped in drums, per drum. •t 85/200 penetr. •u Per 100 gal. •v Per ton. •w Per gal. •x Also tank trucks. •y F.o.b. Oakland •z F.o.b. Edmonds •A F.o.b. refinery, Cleveland. •B F.o.b. Destrehan, La. •C Bulk. •D Prices based on transporting to Manhattan via truck. •E RC. •F Also RC. •G Also MS, SS. •H RC 0–5 incl. •I MC 4. •J MC, RC .0675. •K MC 3, 4 & 5. •L MS. •M MC 1–5, RC 1–5, .089. •N MC 3. •O fob Roxanna, Ill •P F.o.b. refinery Savannah: $0.09/gal., tank cars; $0.20/gal., drums.

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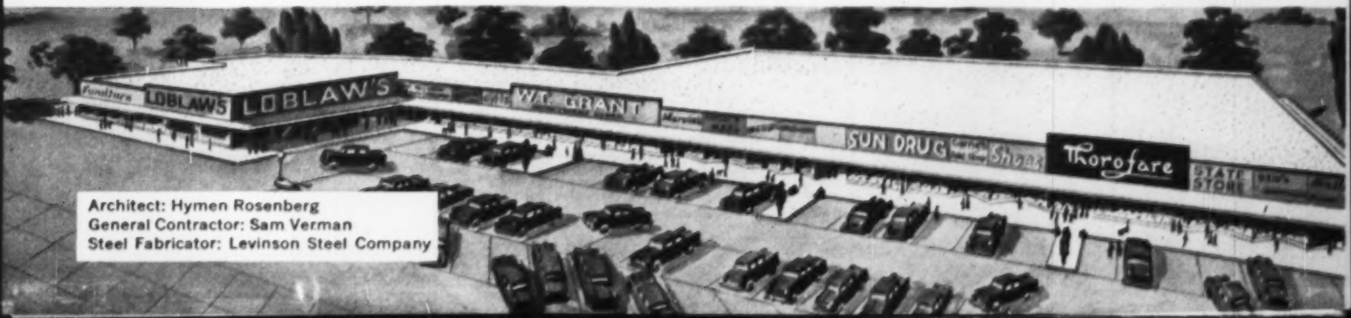

Architect: Hymen Rosenberg
General Contractor: Sam Verman
Steel Fabricator: Levinson Steel Company

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
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J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **N. H., Portsmouth**—SITE PREPARATION, etc.—BA 8/20—Air Base Procurement Office, Portsmouth Air Force Base, site preparation, utilities, clearing, excav., embankment, sewers, etc. $150,000. Keohler & Isaak, 922 Elm St., Manchester, archts. Joseph L. Paley, 230 Clarendon St., Boston, Mass., engr. CD 12/6/51.

HEAVY CONSTRUCTION—LB & CA

Ongelia & Gesvasini, Inc., Casson Ave., Torrington, Conn. CA **$94,044**, sewers, TORRINGTON, CONN. City, Purch Agent—City Hall, Torrington, Conn.

Case General Contractors, Barkhamsted, Conn., LB **$64,464**, site imprvs. at Regional High School serving ing Barkhamsted, Colebrook, Norfolk and New Hartford, WINSTED, CONN. Regional School Dist. No. 7, 84 Main St., Winsted, Conn. CD 5/21, under Public Buildings.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† **Del., New Castle**—PARKING APRON—BA 8/14—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., Air National Guard Aircraft Parking Apron, New Castle County Airport, ENG-36-109-56-65. $130,591. Edwards, Kelcey & Beck, 1518 Walnut St., Phila., Pa., engrs. CD 7/19, under LB.

N. J., Princeton—BA 8/14—Boro, Boro Hall, sewage disposal plant addns. $75,000. Russell Riker, c/o owner, engr.

N. Y., Yonkers—CLUB HOUSE—BA 8/15—Westchester Co., Dpt. P. Wks., County Office Bldg., general constr. club house at Dunwoodie Golf Course Contr. No. 895. Plans deposit $15.

D. C., Wash.—BA 9/19—D. C. Govt., Dpt. Sanitary Eng., 499 Pa. Ave. N. W., Zone 1, Section No. 4, E. Branch Piney Br. Trunk Sewer in Kansas Ave. and 5 St. from Varnum St. to Ingraham St. N. W. Plans deposit $50.

BUILDINGS—BA

Del., New Castle—SCHOOL—BA 8/15—Rosehill-Minquadale School Dist., New Castle, 1 story, brick, elementary school, Collins Park. $800,000. E. William Martin, 830 West St., Wilmington, archt. CD 1/18.

† **New York**—ADMINISTRATION—BA About 9/1—U. S. Eng., Niagara and Bridge Sts., Buffalo, Zone 7, administration bldg., St. Lawrence Seaway, Massena, for St. Lawrence Seaway Development Corp., CIVENG-30-023-56-32. CD 6/25, under LB.

Del., Wilmington—MOTEL, etc.—Bids Asked—Howard Johnson's Lake George, N. Y. 48-unit motel and swimming pool. $350,000. Carl Koch, 55 Brattle St., Cambridge, Mass., archt.

HEAVY CONSTRUCTION—LB & CA

J. L. Murphy, Inc., 340 E. 44 St., New York, N. Y. LB **$233,000** (4 bidders) Contr. 1, air conditioning equip. for furnishing, installing peripheral air conditioning for transportation bldg., 370 Jay St., Contr. E-149, BROOKLYN, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn, N. Y. Bids July 13. CD 6/26.

Hirsch Electric Co., 50 Court St., Brooklyn, N. Y. LB **$159,800**. Contr. 2, electrical work (Brooklyn, N. Y.).

Phillips Constr. Co., Inc., & Dorald Eng. Co., 38 Park Row, New York 38, N. Y. LB **$109,440**. Contr. No. 1 general constr. work for demolition of bldgs., C1, C3, C4, C5, C8, C9, C13 and realignment of roadway at North Brother Island, Bronx Boro, NEW YORK, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids July 11. CD 6/27.

MacNutt Electric Co., Inc., 420 Lexington Ave., New York 17, N. Y. LB **$232,800** (13 bidders) furnishing, installing fluorescent lighting for stations at Wall St. and Bowling Green, Lexington Ave. Line, Clark, Hoyt and Nevins Sts., Seventh Ave., Line, IRT Division, of the New York City Transit System, Contr. E-146, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids July 13. CD 6/26.

Tully & DiNapoli, Inc., 89-31 161 St., Jamaica 32, N. Y. LB **$359,760** (12 bidders) constr. connection between Jerome Ave. Line and Concourse Yard, Bronx Boro, Contr. C-116, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids July 13. CD 6/26.

Paradiso Rosen, Inc., 316 Old Bergen Rd., Jersey City, N. J., CA **$500,000**. drive-in theater, PALMYRA, N. J. Michael Redstone Theatres, 260 Tremont St., Boston, Mass. William H. Black, c/o owner, archt.

† **U. S. Eng.**, 2635 Abbottsford Rd., Phila., Pa. rejected bids May 10, airmens dormitory, McGuire Air Force Base, ENG-36-109-56-43, WRIGHTSTOWN, N. J., LB **$349,975**. Will re-advertise. CD 5/24, under LB.

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg.

Putnam & Greene, Inc., P. O. Box 2012, Station A, Fort Wayne, Ind. CA **$561,491**. flexible base, bit. surf. 22 ft. wide, near Morris-Cooper Twp. line northeast 4.6 mi., T.R. 53, Clearfield Co. CD 7/20, under LB.

Irwin M. Bender, 609 W. Magnolia Ave., Alden, Pa. CA **$150,000**. swimming pool, club house, parking area, filtration sys., ALDEN, PA. Alden Swimming Club, 309 Alurel Ave., Alden, Pa. Bids Apr. 17. CD 3/28.

Norristown Excavating Contractors, 770 Sandy St., Norristown, Pa. CA **$73,435**. athletic field and grading, Rosemont, ARDMORE, PA. Lower Merion School Dist., Ardmore, Pa. Vincent G. Kling, 917 Corinthian Ave., Phila., Pa., archt.

Sylvan Pools, Inc., Doylestown, Pa. CA **$73,000**. 2 swimming pools, CENTRE SQUARE, PA. Beachcomber Swim Club, 8707 Patton Rd., Whitemarsh Village, Pa. Geddes & Brecher, 2047 Locust St., Phila., Pa., archts.

Edward A. Daylor, Coatesville, Pa. LB **$105,200**. Knight Road Bridge, GREEN LANE, PA. Comrs. Montgomery Co., Norristown, Pa.

.. **E. Winter & Co., Inc.**, 1620 Wood St., Phila. 3, Pa. CA **$118,491**. Bid No. 5916, filters, bathing pool piping, appurtenances at Gustine Lake, PHILA., PA. City, Dpt. Procurement, City Hall, Phila., Pa. Bids May 21.

Ardsley Constr. Co., Inc., 285 Madison Ave., New York 17, N. Y. CA **$78,574**. Bid. No. 2589, lining brick sewer in Front St. from 316 ft. south of Girard Ave. to Richmond St., PHILA., PA. City, Dpt. Procurement, City Hall Annex, Phila., Pa. Bids July 3. CD 6/18.

Marino Masse, 4418 N. American St., Phila., Pa. LB **$135,928**. Sewers Bid 2634 and 2635, PHILA., PA. City, Dpt. Procurement, City Hall Annex, Phila., Pa. Bids July 19. CD 7/6.

James D. Morrissey, Inc., 9119 Frankford Ave., Phila., Pa. LB **$226,911**. Sewers Bid 2633 (Phila., Pa.).

Harrison Constr. Co., 1101 Western Ave., Pittsburgh, Pa. CA Est. **$318,250**. channel imprv., N. Braddock, East Pittsburgh, Turtle Creek Channel, Monongahela River to Westinghouse Flood Gate, PITTSBURGH, PA. Turtle Creek Dist. Flood Control Auth., 1721 Grant Bldg., Pittsburgh, Pa. Alex Hutchinson, 608 South Ave., Wilkinsburg, Pa., engr.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

Frank Donatelli, Inc., 5779 Broad St., Pittsburgh, Pa. LB **$168,670**. sanitary sewer, laterals, appurtenances Penn Twp., PITTSBURGH, PA. Bd. Comrs. Penn Twp., 12245 Frankstown Rd., Penn Hills, Pittsburgh, Pa. Alex Hutchinson, 608 South Ave., Wilkinsburg, Pa., engr.

† **William M. Chappell**, 1346 Good Hope Rd. S.E., Wash., D. C. LB **$515,000**. Base Bid No. 1. **$84,700**. Base Bid. No. 2 (3 bidders) heating plant addn., water supply for deluge sprinkler sys., ENG-49-080-56-28-(29), and ENG-49-070-56-32-(33), ANDREWS AIR FORCE BASE, MD. U. S. Eng., First and Douglas Sts. N.W., Wash 25, D. C. Bids July 24. CD 6/29.

Corson & Gruman, 33 and K St. N.W., Wash., D. C., LB **$88,141** (4 bidders) resurf. various roadways with asphaltic materials (cover) WASH., D. C. D. C. Govt. Dpt. Hys., 499 Pa. Ave., N. W., Wash., D. C. Bids July 23. CD 7/19

† **U S. Eng.**, 2635 Abbottsford Rd., Phila., Pa. rejected bids, chapel and related site imprvs., New Castle Air Force Base, ENG-36-109-56-63. NEW CASTLE, DEL. LB **$132,335**. Will re-advertise. CD 6/18, under LB.

BUILDINGS—LB & CA

Mahony-Troast Constr. Co., 1500 Walnut St., Phila., Pa. CA **$500,000**. 1 and 2 story, pre-cast concrete, structure 81,000 sq. ft. mfg PLANT and OFFICE, ATCO, N. J. Warren Webster Co., 17 and Federal Sts., Camden, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archts and engrs.

Peerless Constr Co., c/o owner. CA **$600,000**. 20 HOUSES, Owatonna St. off Chestnut Rd., HAWORTH, N. J. L. A. Young, 203 Cedar Lane, Teaneck, N. J. L. Feinen, 320 Lincoln Ave., Hasbrouck Heights, N. J., archt.

David Bogie, 611 Shore Rd., Somers Point, N. J. CA **$352,000**. 32 RESIDENCES, West Ave., LINWOOD, N. J. G. David Balsley, Shore Rd., Linwood, N. J. D. W. B. Haining, Jr., 5 S. Virginia Ave., Atlantic City, N. J., archt.

Albert Salzman, Cherry Hill Rd., Princeton, N. J. Separate Contracts. **$494,000**. 19 RESIDENCES, Cherry Hill Rd., PRINCETON, N. J.

A. Savonick, 210 Nancy Lane, Trenton, N. J. Separate Contracts. **$351,000**. RESIDENTIAL DEVELOPMENT, Ewingville Rd., etc., TRENTON, N. J.

Meyer Yaskin, 5411 Lebanon Ave., Phila., Pa. CA **$350,000**. FARMERS MARKET, 5-stores, parking, 1 story 80,000 sq. ft. masonry, structural steel constr., WOODBURY, N. J. Garden State Mart, c/o Henry S. Berg, archt., 1420 Walnut St., Phila., Pa.

John A. Robbins Co., Inc., 3 Penn Center Plaza, Phila., Pa. CA Est. over **$344,000**. 1 story, 120x140 ft., masonry SUPERMARKET, parking lot, LANCASTER, PA. Sherob Co., Inc., Penn Center Plaza, Phila., Pa. American Stores, lessee.

Fairfield Estates, Inc., c/o Philip Kniskern, 20 S. 15 St., Phila., Pa. Separate Contracts. **$350,000**. RESIDENTIAL DEVELOPMENT, Fairfield Rd., BERWYN, PA.

Wallace Engineering & Constr. Co., Lancaster Pike, Bryn Mawr, Pa. CA **$370,000**. SUPERMARKET, parking area Baltimore Pike, part of Oak Park Shopping Center Development, CLIFTON HEIGHTS, PA. Morris A. Kavitz, Inc., 225 15 St., Phila., Pa. Kelly & Gruzen 80 Fifth Ave., New York, N. Y., archts.

William J. Graham, 242 Wood St., Doylestown, Pa. Separate Contracts. **$700,000**. RESIDENTIAL DEVELOPMENT, 28 units, Pebble Hill Rd., DOYLESTOWN, PA.

▲ **American Bridge Div., U. S. Steel Corp.**, Ambridge, Pa. CA Est. **$6,000,000**. ELECTRIC FURNACE at Roemer Works, FARRELL, PA. Sharon Steel Corp., Sharon, Pa. Awarded July 23. CD 7/26.

Foley & Calder, 914 Sproul Rd., Springfield, Pa. Separate Contracts. **$350,000**. RESIDENTIAL DEVELOPMENT, W. Goshen Rd., GULPH MILLS, PA.

Hopson & Huber, Box 84, Brideport, Pa. Separate Contracts. **$540,000**. RESIDENTIAL DEVELOPMENT, Dartmouth Hills, GULPH MILLS, PA.

▲ **Dill Constr. Co.**, Box 472, Latrobe, Pa. CA Est. **$1,000,000**. 1 story, 100x200 ft., steel block grinding PLANT, KINGSTON, PA. Kennametal, Inc., Latrobe, Pa.

Comar Constr. Co., 7939 Frankford Ave., Phila., Pa. Separate Contracts. **$550,000**. RESIDENTIAL DEVELOPMENT, De Marco Dr., PHILA., PA.

C. P. Bonetti & Bros., 1504 S. 21 St., Phila., Pa. CA **$100,000**. 1 story, concrete block factory and STORE addn., PHILA., PA. Zakian Bros., 3813 Walnut St., Phila., Pa. The Kuljian Corp., 1200 N. Broad St., Phila., Pa., archts.

S. Yellin & Son, Inc., 222 N. 11 St., Phila., Pa. CA **$100,000**. 1 story, 37x20 ft., 50x98 ft., brick block TRUCK DOCK and OFFICE, PHILA., PA. Owner, c/o contractor.

(Continued on page 96)

S & M Construction Company, Providence, R. I., uses 12 of these Mack LJSWX diesel dumpers under 2-yard Lorain shovel in excavating peat bog near Atholl, Mass., on a by-pass for U. S. Route 20.

ONLY A SPECIALIST NEED APPLY...

. . . For only Macks can get in and out of mud like this under their own power!

Axle deep in soft, soupy mire and hauling a full load of heavy peat bog, 80% water, this Mack dumper will pull out of the muck and be on its way . . . and back again on schedule.

It's Mack's famous Balanced Bogie, along with Mack's exclusive Power Divider, that makes seemingly impossible tasks like this everyday assignments for Macks. This wonder-working team delivers torque to each wheel in proportion to its traction. In addition, it assures uniform tire loading and braking on all four rear wheels, and maximum stability under any terrain or road conditions.

When you add the Balanced Bogie and Power Divider to Mack's rugged construction, ease of maintenance, and economy of operation, you'll see why Macks are the most versatile trucks, the biggest money makers in the construction industries today. See your Mack Branch or Distributor for complete details. Mack Trucks, Inc., Plainfield, New Jersey.

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3569

Fort Wayne, Ind. CA $561,491. flexible base, bit.

(Continued on page 96)

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(Continued from page 94)

▲ **United Engineering & Constr. Co.,** 141 Arch St., Phila., Pa. CA **$1,450,000.** STEAM HEATING PLANT, PHILA., PA. Phila. Electric Co., Ninth and Sansom Sts., Phila., Pa.

† **Dpt. Navy,** Phila. Naval Base, Phila., Pa. rejected bids June 7, JUNIOR OFFICERS' QUARTERS, site imprvs., Naval Hospital, NBy 92748, Spec. 50955, PHILA., PA. Will re-advertise. CD 6/8.

▲ **Gamble & Gamble,** Bolivar, Pa. LB **$1,038,970.** 1 and 2 story, steel, brick JUNIOR SENIOR HIGH SCHOOL, Jefferson Twp., SAXONBURG, PA. South Butler County Joint School Dist., Saxonburg, Pa. Bids July 11. CD 6/28.

Bendik Constr. Eng. Co., Cool Spring St., Uniontown, Pa. LB **$487,200.** brick, stone, steel CHURCH addn., UNIONTOWN, PA. Third Presbyterian Church, Uniontown, Pa. Kuhn & Newcomber, 470 Washington Rd., Mount Lebanon, Pa., archts.

▲ **J. D. Hedin Constr. Co.,** 2900 Newton St. N. E., Wash., D. C. LB **$2,500,000.** (9 bidders) Edward W. Broom Junior High SCHOOL, ROCKVILLE, MD. Montgomery Co. Bd. Educ., Rockville, Md. Bids July 19. CD 7/3.

A. J. Vilone, Jr., 2213 Concord Pike, Wilmington, Del. Owner Builds. **$350,000.** RESIDENTIAL DEVELOPMENT, Blue Rock Manor, WILMINGTON, DEL.

Cantera Constr. Co., 1508 Penna Ave., Wilmington, Del. CA, **$95,000.** 1 story, masonry 9,000 sq. ft. TERMINAL, WILMINGTON, DEL. Victor Lynn Lines, Inc., Salisbury, Md.

SOUTH

HEAVY CONSTRUCTION—BA

N. C., Tarboro—BA 8/21—City, W. B. Howard, mgr., 1.5 m.g.d. filter plant addn. Plans deposit $25 general constr., $15 electrical work. L. E. Wooten & Co., 306 S. Dawson St., Raleigh, engr. CD 6/10/54.

† **FLORIDA**—BA 8/23—At office Park Supt. Homestead, **Dade Co.**—Proj. 1A8-2A1, processing oolite rock base, bit. prime coat and surf. tr., etc. 10.306 mi. Park Road from Joree Hammock Rd. to concrete bridge and on Mahogany Hammock Road from the Park Road to Mahogany Hammock, Everglades National Park, adv. ENR 8/9. CD 3/5.

HEAVY CONSTRUCTION—SLC

Fla., Sanford—HEADQUARTERS—National Exhibition Co., Horace C. Stoneham, pres., 100 W. 42 St., New York, N. Y., soon lets contract, New York Giants Farm System Headquarters Bldg., Mellonville and Celery Sts. John A. Burton IV, Sanford Atlantic National Bank Bldg., archt. CD 7/10.

HEAVY CONSTRUCTION—LB & CA

Luck Corp., P. O. Box 7036, Richmond, Va., CA **$299,254.** sewage disposal plant, Div. L, Cary St. Road Intercepting Sewer Part 1, RICHMOND, VA. City, Mosque Bldg., Laurel and Main Sts., Richmond 20, Va. Bids June 19. CD 6/8

▲ **WEST VIRGINIA**—State Road Comn., Charleston, Zone 5,

W. Va.—Andersons', Inc., 500 Pennsylvania Ave., Charleston, 2, W. Va., LB **$123,962.** b. conc. 11.8 mi. Proj. 3151-A, B. & C and 296-A, Boone Co.;

W. Va.—V. N. Green & Co., Inc., 1640 4 Ave., Charleston, W. Va., LB **$80,969,** surf. tr. 8.5 mi. Proj. 5600, Logan Co.;

W. Va.—Bennie Snyder, Box 816, White Sulphur Springs, W. Va., LB. **$479,084.** traffic bound base, b. conc. base, bottom and wearing courses 2.352 mi. Proj. F-117 (6) Cont. 1, Randolph Co.;

W. Va.—Howard Price & Co., 2829 Roseneath Rd., Huntington, W. Va., LB **$758,757.** traffic bound base, b. conc. 4.692 mi. F-158 (24) Wood Co. Bids July 24. CD 7/19.

† **Richards & Associates, Inc.,** Carrollton, Ga., CA **$176,200.** Air Force Plant No. 6, power supply and distr. sys., approx. 12 mi. 12 kv overhead distr. sys. sub-station structure, clearing, grubbing chain-link fencing, circuit breakers transformers and misc. equip. for Dpt. Air Force, DAWSONVILLE, GA. Lockheed Aircraft Corp., Georgia Div. Marietta, Ga. Bids July 6. CD 6/19.

† **MacDougald Constr. Co.,** P. O. Box 1655, Atlanta, Ga., CA **$671,095.** 10 mi. roads and 2 bridges for Dpt. Air Force, DAWSONVILLE, GA. Lockheed Aircraft Corp., Georgia Div., Marietta, Ga. Bids July 9, awarded July 23. CD 6/19.

BUILDINGS—LB & CA

W. A. Simon, Inc., 1006 S. 17 St., Wilmington, N. C. CA **$182,000.** PLANT addn., WILMINGTON, N. C. The Timme Corp., Castle Hayne Rd., Wilmington, N. C. The McPherson Co., 408 S. Main St., Greenville, S. C., engr.-archt.

Geo. W. Kane, Jefferson Bldg., Greensboro, N. C. CA **$604,276.** RESEARCH LABORATORY addn., WINSTON-SALEM, N. C. R. J. Reynolds Tobacco Co., Reynolds Bldg., Winston-Salem, N. C. Bids July 12. CD 6/29.

▲ **Florida State Bd. Control,** Administration Bldg., University of Florida, Gainesville, Fla. rejected bids July 10, LABORATORY SCHOOL, University of Florida, GAINESVILLE, FLA. LB **$1,284,840.** CD 7/18, under LB.

Allis-Chalmers Mfg. Co., 14 and Farnum Sts., Omaha, Neb., LB **$159,616.** electrical equipment and installation, power plant, KEY WEST, FLA. Utility Bd. City Hall, Key West, Fla. R. W. Beck & Assocs., Columbus Bank Bldg., Columbus, Neb., engrs. CD 6/28.

(Continued on page 98)

New York State Engineers build road in spite of slashed budget. Bitumuls with local aggregate is selected.

When a drastic cut in appropriations forced the New York State Department of Public Works to reduce a project to a minimum expenditure, they turned to the proved method of Bitumuls-Native Aggregate construction. Based on the experience of several of the counties in the region, they knew this to be a sound method of stretching road-building dollars.

Rotary mixer and Bitumuls tank truck work in tandem to stabilize 4" lift of base aggregate.

The original plan

Airport construction at Riverhead, Long Island forced the relocation of the Wading River-Manor Road. As engineered by the State Department of Public Works, plans for this road originally called for two 24 ft. lanes for a length of approximately 6 miles. Financing, through the U.S. Bureau of Public Roads, struck a snag; and drastic economies were required to keep the job alive. In adjusting to the lower appropriation, it was decided to reduce the project to one 24 ft. lane, of a length allowable under the available monies.

New estimates indicated this would amount to approximately 3.16 miles, and invitations based on this distance were put out for bids. These specifications called for an 8 inch stabilized base, with 1" Asphaltic Concrete surfacing.

Job data

Local selected soil, sand, and gravel blended to meet the following dry sieve specifications were used for the stabilized base work on this job.

PERCENT BY WEIGHT PASSING		
Sieve	Specification	Aggregate Used
1½" Sieve	100	100
1" Sieve	90-100	84.5
¾" Sieve	60-80	78.3
¼" Sieve	30-50	64.2
#10 Mesh	20-40	50.5
#40 Mesh	10-30	10.9
#80 Mesh	7-8	5.6
#200 Mesh	5-15	3.8
Emulsified Asphalt	5-7%	5.75%

The amount passing the 200 mesh was specified to be not more than one-half the amount passing the 40 mesh sieve.

Aggregate was blended at the pit, approximately five miles from the job site, tested, then trucked to, and spread on, the sub-base. Enough such material for the bottom four inches of the base course was brought in and spread. Bitumuls Emulsified Asphalt, mixing grade, was pumped directly from the transport truck into a Rotary type mixer. This first 4" base course was mixed, rolled, and cured. Aggregate was then brought in for the second 4" course and the process repeated.

Heavy rains encountered

During the construction of the base course, two separate hurricanes interrupted job-progress. Delay was held to a minimum because Bitumuls readily coats damp aggregate, and damage caused by the storm was restricted to exposed areas of the sub-base plus those areas of the stabilized base that were not cured.

Surface course construction

The 8" Bitumuls Stabilized Base was topped with 1" fine aggregate Asphaltic Concrete surface course. Spreading and compaction of this material was accomplished by conventional methods. The surface course was extended 1 ft. on either side of the 24 ft. pavement to provide a degree of shoulder stability. Upon final acceptance, the road was turned over to the town of Riverhead, New York, by the contractor.

Sound paving, with economy... Bitumuls Emulsified Asphalt used with local aggregate

Road-builders throughout the nation have come to recognize the value of Bitumuls® Emulsified Asphalt in holding the cost of road construction to the lowest possible level.

A major factor in this economy: *Bitumuls' compatibility with local or in-place aggregates, even though they be hydrophilic.* This eliminates costly transportation of imported materials.

Our Engineers, operating out of our nationwide network of offices, will gladly provide complete information on specific grades of Bitumuls for various types of pavement construction.

Bitumuls is used extensively for maintenance work, too. *Call our nearest office for complete details.*

ABA

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Mobile, Ala.
Oakland 1, Calif.
Cincinnati 38, Ohio
Inglewood, Calif.
Baltimore 3, Md.
San Juan 23, P. R.
Portland 7, Ore.

LEADING MARKETERS OF ASPHALTS, CUTBACKS AND BITUMULS—NATIONWIDE

(Continued from page 96)

MIDDLE WEST

HEAVY CONSTRUCTION—BA

† **Illinois**—SPECIAL AAA, etc.—BA 8/14—U. S. Eng., 475 Merchandise Mart, Chicago, Zone 54, Special AAA and related work, Site C-03D, Cook Co., Serial No. ENG-11-032-57-10. Extended date. CD 7/19, under Public Buildings.

▲ **Ill., East St. Louis**—SWIMMING POOL, etc.—BA 8/16—Bd. Park Comrs., East St. Louis Park Diistrict, P. J. Cronin, pres. 929 Missouri Ave., Proj. A, swimming pool and imprvs., equip., auto-parking imprvs. and sewer, water and gas sys. in Jones Park; Proj. B, swimming pool, imprvs. equip. sewer, water and gas sys. imprv., Lincoln Park. $1,350,000. Plans deposit $100 each for general and mech. $50 each for electrical. Paul J. Saunders, 3232 State St., archt. CD 7/25.

ILLINOIS—BA 8/23—Illinois State Toll Hy. Comn., 20 N. Wacker Dr., Chicago, Zone 6,

Contract N-2A, grading, drainage, paving appurtenances, precast concrete bridges for approx. 4.775 mi. Northern Illinois Toll Hy., Constr. Section N-2A, beginning at point about 1,900 ft. south of U.S. Rte. 20 at Northern Ill. Toll Hy. Centerline Station 195 plus 00 in Rockfort Twp., Winnebago Co. and extending northerly to point 3,135 ft. south of Harlem Rd. at Northern Ill. Toll Hy. Centerline Station 447 plus 0972 in Harlem Twp., Winnebago Co. Plans deposit $30; adv. ENR 8/9. CD 6/4/54.

Mich., Detroit—BA 8/27—Milk River Drainage Bd., Christopher J. Mulle, 3523 Cadillac Tower, Milk River Drain, vertical propeller type storm water pumps, 7 pumps and motors. Plans deposit $25, refundable. Pate & Hirn, 532 Michigan Bldg., Zone 26, engr. CD 12/13.

Mich., Detroit—BA 8/27—Black Marsh Drainage Bd., Christopher J. Mulle, chn., 3523 Cadillac Tower, Black Marsh Drain, incl. 1,900 ft. 8 to 10 ft. tunnel sewers, 1,600 ft. 3 ft. 6 ft. sewers open cut with jct. chambers, armholes, appurtenances, Grosse Pointe Woods. Plans deposit $25, refundable. Pate & Hirn, 532 Michigan Bldg., Detroit, Zone 26, engrs. CD 12/15.

Mich., Detroit—BA 8/27—Girard Drainage Bd., Christopher J. Mulle, chn., 3523 Cadillac Tower, Girard Drain, incl. 29,470 lin. ft. 12 in. to 12 ft. sewer both open cut and tunnel, Harper Woods, Grosse Pointe Woods. Plans deposit $25, refundable. George Jerome & Co., 1437 National Bank Bldg., Detroit, Zone 26, engrs. CD 12/13.

Mich., Detroit—BA 8/27—Milk River Drainage Bd., Christopher J. Mulle, chn., 3523 Cadillac Tower, Milk River Drain, 6,000 ft. 10- to 16-in. tunnel sewers, junction chambers, manholes, Grosse Pointe Woods. Plans deposit $25, refundable. Pate & Hirn, 532 Michigan Bldg., Zone 26, engrs. CD 12/13.

† **Illinois**—BA About 9/4—U. S. Eng., 420 Locust St., St. Louis 2, Mo., highway closure structure East St. Louis and vicinity (East Side Levee & Sanitary Dist.) Proj. Item IV E, Madison Co. at intersection of State Hy. and East Side Levee and Sanitary Dist., levee south bank Cahokie Creek Diversion Channel, opposite mile 195 Mississippi River, CIVENG-23-065-57-10. Bids 6/27, CIVENG-23-065-56-89 rejected. CD 7/2, under LB.

▲† **Indiana**—BA 8/30—U. S. Eng., 830 W. Broadway, Louisville, Ky., outlet works Mansfield Reservoir Vigo Co., ENG-15-029-57-1. $1,000,000.

† **O., Toledo**—RUNWAY—BA On Or About 9/5—U. S. Eng., 237 Fourth Ave., Huntington, W. Va., runway extens., taxiways, aprons, Air National Guard, ENG-46-022-57-5. CD 6/18.

BUILDINGS—BA

† **O., Springfield**—TRAINING CENTER—BA 8/16—U. S. Eng., 237 Fourth Ave., Huntington, W. Va., army reserve training center, ENG-46-022-57-3. CD 7/16.

BUILDINGS—SLC

Ind., Gary—PLANT—Coca-Cola Bottling Co., 933 Madison St., soon lets contract bottling plant and parking lot, Colfax Ave., from 9th to 11th Sts., $600,000. Quinn & Christiansen, 134 N. LaSalle St., archts. CD 6/6.

HEAVY CONSTRUCTION—LB & CA

OHIO—State Hy. Dpt., Columbus,

rejected bids July 10, Type T-35, T-71 and structure 0.71 mi., S.R. 12, Sects. (64-1.08) U-UG-646 (3), city of Fostoria, Seneca Co. LB **$848,203**. CD 7/17, under LB.

▲ **Hunkin-Conkey Constr. Co.**, 1740 E. 12 St., Cleveland 14, O. CA **$1,984,254**, est. $2,250,000. flocculators and settling basins at Clague Rd. filtration plant, CLEVELAND, O. City, Dpt. Water & Heat, Frank J. Schwemler, comr., City Hall, Cleveland 14, O. Bids July 13, awarded July 25. CD 7/23, under LB.

John H. Murnane Co., 8001 Old Granger Rd., Cleveland 25, O. CA **$224,075**. (2 bidders) sanitary sewerage sys., sewage treatment plant, MIDDLEFIELD, O. Village, Village Hall, Middlefield, O. E. D. Barstow, 163 N. Union St., Akron, O., engr. Awarded July 24.

Black Top Roads Co., 2545 N. Mannheim St., Melrose Park, Ill., LB **$489,910**. c. conc. paving, curbs, gutters, concrete sidewalks, storm sewers, Section 28 CS, ELMWOOD PARK, ILL. Village, Village Hall, Elmwood Park, Ill. Walte Wilson & Assocs., 105 W. Madison St., Chicago, Ill., engrs.

WISCONSIN—State Hy. Comn., State Hy. Office Bldg., Madison,

Wis.—**Warren E. Wieseler**, 730 W. Glendale St., Appleton, Wis., LB **$132,592** (6 bidders) Contract 1, grading, base, pavement 0.674 mi. Proj. T 05-3 (12) Marathon Co.;

Wis.—**H. Turner & Son**, Boscobel, Wis., LB **$141,107** (7 bidders). Contract 1, b. conc. 6.045 mi. C.T. Hy. "A", Proj. S 1255 (1), Winebago Co. Bids July 24. CD 7/10.

Cooke Contg. Co., 1116 Penobscot Bldg., Detroit 26, Mich. LB **$354,396**. c. conc. paving 5 mi. streets in Venetian Village subdivision, HARPER WOODS, MICH. General Enterprises, Inc., 20602 Harper Ave., Harper Woods, Mich. Bids June 27. CD 6/22.

The Boam Co., Livonia, Mich. CA **$439,949**. storm sewers, 32,900 lin. ft. 10- to 42-in. concrete pipe, 7,000 ft. 10 in. catch basin leads, 140 manholes, 280 catch basins, 9 headwalls, 12- to 42-in., NORTH MUSKEGON, MICH. City, Anna M. Kueny, clk., North Muskegon, Mich. Bids July 5. CD 6/29.

BUILDINGS—LB & CA

▲ **W. J. Camlin Constr. Co.**, Newark, O. CA Est. **$5,500,000** WAREHOUSE-SHIPPING LABORATORY addnl. production equip., modernization of other facilities, NEWARK, O. Kaiser Aluminum & Chemical Corp., Kaiser Bldg., 1924 Broadway, Oakland, Calif.

▲ **Abell Howe Co.**, 53 W. Jackson Blvd., Chicago, Ill., CA, **$2,500,000**. design and construct WAREHOUSE and CENTRAL OFFICE, N. W. corner 25 and Cermak, BROADVIEW, ILL. Steel Warehouse Corp., 350 Root St., Chicago, Ill.

Paschen Contractors, 2739 N. Elston Ave., Chicago, Ill., CA, **$685,000**. E1 STATION, 111 W. Cermak Rd., CHICAGO, ILL. Commonwealth Edison Co., 72 W. Adams St., Chicago, Ill. Naess & Murphy, 80 E. Jackson Blvd., Chicago, Ill., archts.

John Traff, 3735 N. Clark St., Chicago, Ill., LB **$781,589**. HIGH SCHOOL addn., MIDLOTHIAN, ILL. Bremen Community High School Dist., 228, 15201 Crawford Ave., Midlothian, Ill. CD 11/29.

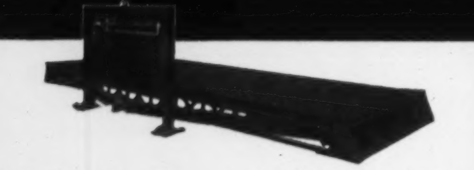
▲ **Lerner Linden Co.**, 21701 Republic St., Oak Park, Mich. CA **$1,059,473**. general constr. JUNIOR HIGH SCHOOL, Tyler site in Oak Park, BERKELEY, MICH. Bd. Educ., 2323 Catalpa St., Berkeley, Mich. CD 7/25, under LB.

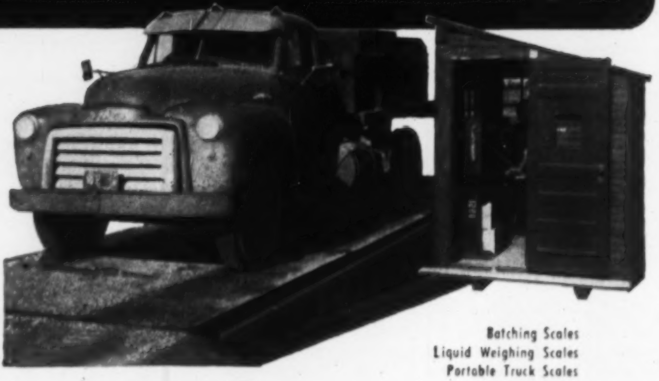
R. C. Hendrick & Son, 427 Atwater St., Saginaw, Mich. CA Est. **$970,000**. general constr. general medical HOSPITAL, HOWELL, MICH. McPherson Community Health Center, Howell, Mich. Bids June 26. CD 6/5.

▲ **Mark Builders**, 10222 W. McNichols Sts., Detroit 21, Mich. Owner Builds. **$1,920,000**. 110 brick HOMES, Beverly Wood sect. North Main south of 13 Mile Rd., ROYAL OAK, MICH.

(Continued on page 102)

PROOF! Thurman PORTABLE truck scales
EASIEST to move! need *NO* concrete pit!





Just winch your Thurman *Portable* on to a truck bed and take it with you from job to job. Accuracy and dependability have been built-in, to stay. Once at the site, choose a level area, place the scale and ramp earth at both ends. Trucks move on and off easily. You save on expensive concrete pit installations and weighing costs.

CAPACITIES: 20 to 50 ton, **DECK lengths: 18 to 43 ft.**

Write today for Bulletin 601.

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Portable Truck Scales
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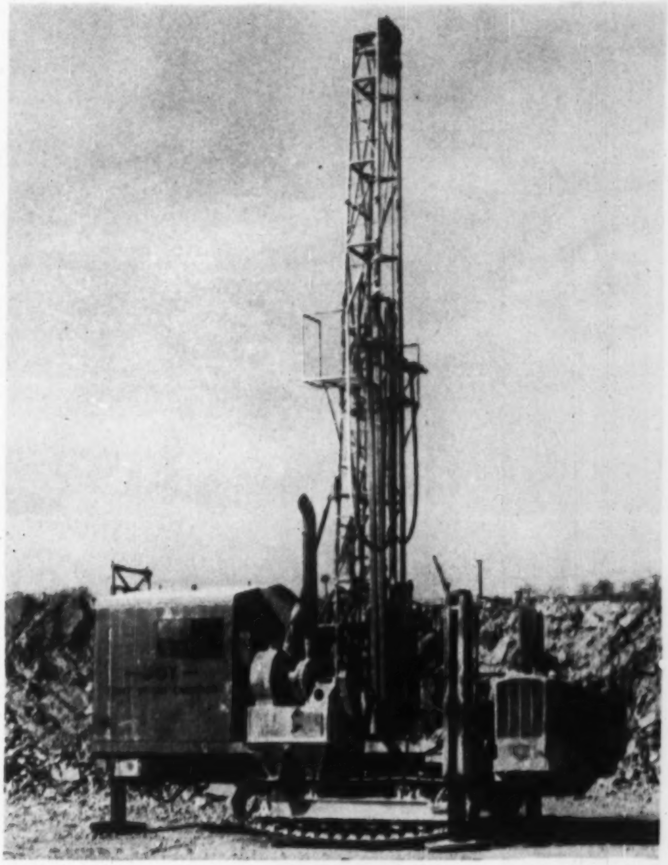
Precision Products since 1918

THURMAN MACHINE COMPANY, DEPT. E 156 N. 5th STREET, COLUMBUS, OHIO

"...this JOY CHAMPION BLAST HOLE DRILL was so good We Bought TWO More"



"IT OUTDRILLS SEVEN CHURN DRILLS"
at the G. & W. H. Corson Quarry, Plymouth Meeting, Pa.

CHARLES LAUMAN
CONTRACT BLAST HOLE DRILLER
NORRISTOWN, PA.

"That's not all," states Contract Driller Charles Lauman. "Most of our drilling is in hard, tough dolomite with strata tilted at all angles and loaded with clay pockets and clay seams. We have found that the 58-BH Joy Champion will drill a smoother vertical hole wherever the hole is spotted. This eliminates toes and gives our customers a straight vertical face. We're convinced it's the best machine for the job—so much so that we bought two more on the strength of this one's production."

The Joy Champion DRILLS DRY with a tri-cone roller bit which continuously pressure-cuts the rock. An air-blast, forced down the drill pipe and through the bit, cools the bit and forces cuttings to the surface.

The Champion drills straight, smooth-walled, easily loaded holes up to 7⅞" diameter and to any quarrying depth required. It moves fast between holes and sets up quickly for drilling on three hydraulic jacks. Two Champion models—Mediumweight and Heavyweight—can be furnished with either electric or diesel drive. ***Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

Consult a Joy Engineer

OR **Write for FREE Bulletin 00-00**

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CHAMPION BLAST HOLE DRILL

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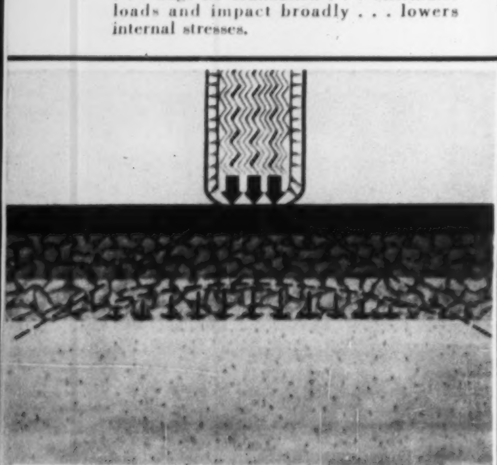
Hugs earth—spreads load

No subgrade stays perfect. Asphaltic concrete adjusts to variations as they develop . . . hugs its foundation . . . distributes loads and impact broadly . . . lowers internal stresses.



Savings pay maintenance

Table below reports Oklahoma's saving on paving Turner Turnpike with Asphalt. It's enough for 65 years maintenance at today's prices.

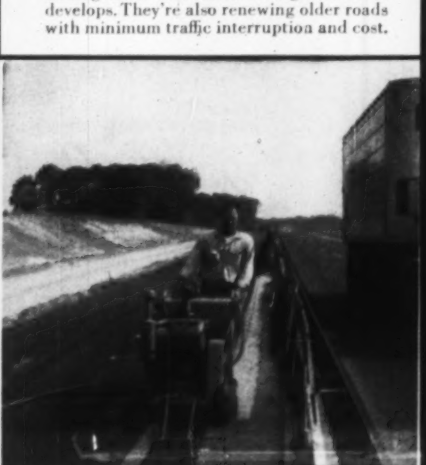
BID PRICES BY CONTRACT SECTIONS
THE TURNER TURNPIKE—
OKLAHOMA CITY TO TULSA
(Awards by the Oklahoma Turnpike Authority)

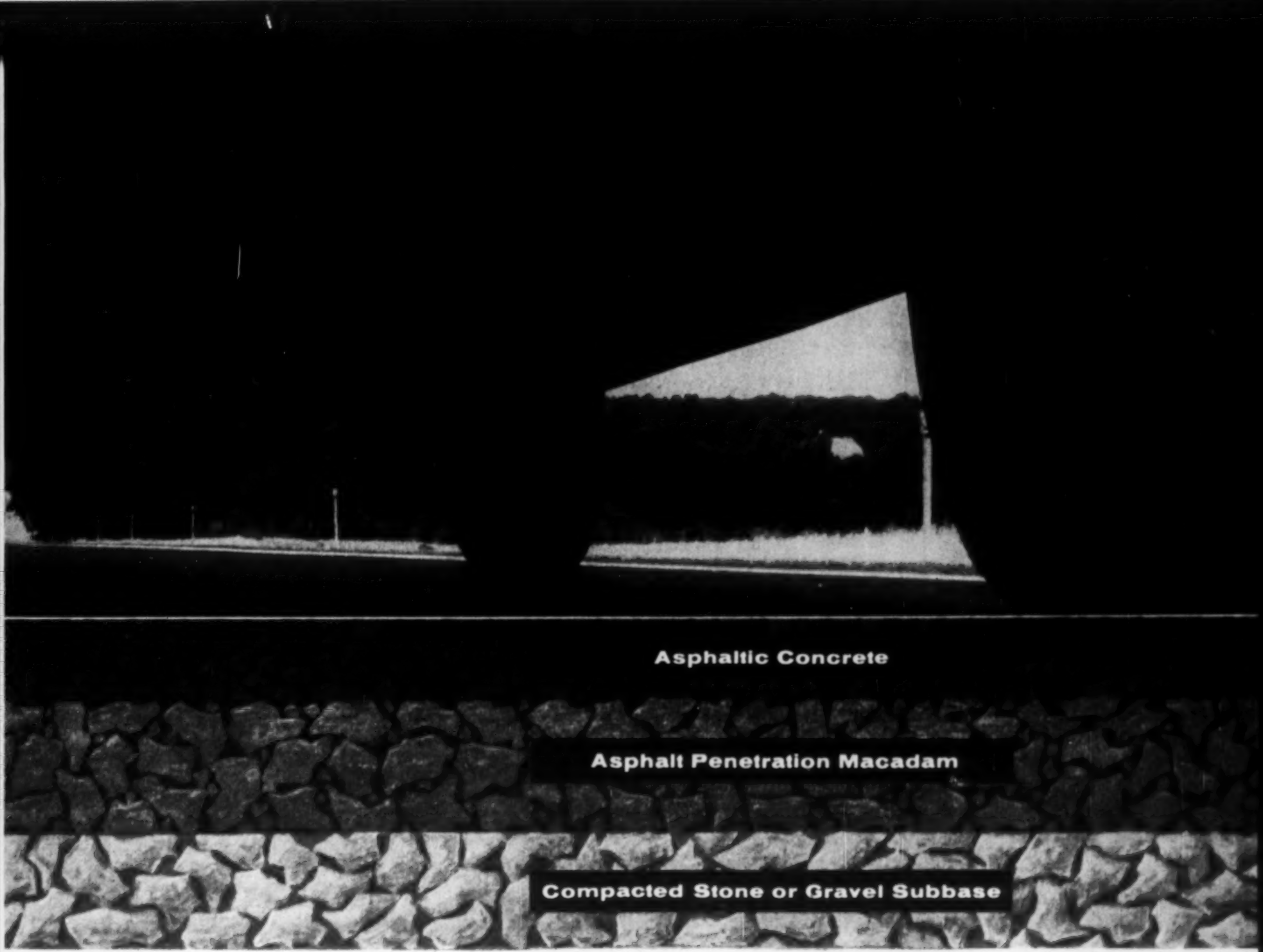
CONTRACT NUMBER	MILES	ASPHALT	ASPHALT SAVING
#34	4.53	$ 491,636	$ 57,529
#39	5.93	615,131	96,241
#40 (A&B)	7.98	941,343	94,070
#41	5.65	608,269	99,545
#42	3.38	351,115	58,098
#31	7.83	883,098	105,545
#32	8.04	902,231	112,027
#37	4.94	548,641	67,563
#38	7.61	848,181	110,956
#17	9.03	957,213	136,890
#18 (A&B)	9.05	1,097,599	131,979
#33	8.61	1,046,907	90,677
TOTAL	82.58	$9,291,364	$1,161,120

The Turner Turnpike was designed to carry axle loads of 28,800 Pounds

Capacity easily upped

Many states are planning to modernize in easy stages with Asphaltic concrete . . . adding lanes and extra strength as need develops. They're also renewing older roads with minimum traffic interruption and cost.




Asphaltic Concrete
Asphalt Penetration Macadam
Compacted Stone or Gravel Subbase

R pavement on interstate highways

The talk is over. Next step is building your State's sections of the Interstate Highway System.

Question now is *which* paving? Which meets the engineering requirements with the greatest economy?

The facts favor Asphaltic concrete.

Take engineering requirements. Findings on the WASHO Road Test show that standard Asphaltic concrete designs provide all-weather roads able to carry the heaviest legal truck axle loads, AND MORE!

Photo shows why. Asphaltic concrete *spreads* wheel loads, has built-in resilience to take traffic pounding. It withstands temperature changes, conforms to settlements without fracturing. It repels moisture, melts off ice and snow more quickly, isn't harmed by wintertime use of chemicals.

Take first cost. Here are figures showing Asphalt savings based on actual competitive bids. New Jersey Turnpike (118 miles) $5,457,134 saved. Oklahoma Turnpike (83 miles) — see table at left—$1,161,120 saved. Savings like these pay for years of maintenance . . . or allow more and wider road for the money.

Take maintenance. It's always low with Asphaltic concrete. It's easier too, and much faster.

And when future loads and traffic volume increase as they inevitably will, just add another course of Asphaltic concrete. This builds up thickness and strength.

Plan for Asphaltic construction. You'll have smooth going . . . during construction . . . on the road . . . with the taxpayers.

Ribbons of velvet smoothness . . .
MODERN ASPHALT HIGHWAYS

THE ASPHALT INSTITUTE
Asphalt Institute Building
College Park, Maryland

The Turner Turnpike was designed to carry axle loads of 28,800 Pounds

Extra Value makes the difference in Contract Bonds

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Indemnity of North America has the financial capacity and the experience to furnish bonds covering projects of practically any size or description. A good example is its part in the demolition of New York's 3rd Avenue El, a long-awaited modernization project on the East Side. Indemnity's Bond guaranteed the contractor's performance as per contract. Indemnity's size and the extent and diversity of its activity in the surety field enable the company to maintain a high standard of service that is dependable and efficient. All this means 'Extra Value' in bonding facilities and, for contractors who qualify, preferred rates* and prompt attention to their requirements.

*Not available in Louisiana and Texas

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INDEMNITY INSURANCE COMPANY OF
NORTH AMERICA
Philadelphia

Protect what you have©

time use of chemicals.

the taxpayers.

College Park, Maryland

(Continued from page 98)

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

Mo., Columbia—ATHLETIC FIELDS—BA 8/15—Office of Director of Constr., 401 E. Stewart Rd., athletic fields for Curators of University of Missouri, Dale O. Bowling, bus. mgr., 123 Jesse Hall, Columbia, Mo. $300,000. CD 8/25.

† **Mont., Glasgow**—INFIRMARY—BA 8/23—U. S. Eng., City-County Airport, Walla Walla, Wash., 1 story, rein.-con., masonry 6,000 sq. ft. infirmary at Air Force Base, ENG-45-164-57-1. Plans deposit $100. Extended date. CD 7/16.

† **Colo., Colorado Springs**—WAREHOUSE—BA 8/28—Dpt. Air Force, P.O. Box 1670, service and supply area (warehouse), IEO facilities, etc., (IFB) 05-613-22 at Air Force Academy. Extended date. Skidmore, Owings & Merrill, 3333 N. El Paso St., engrs.-archts. CD 6/15.

† **New Mexico**—BA 8/28—Bureau Reclamation, Dpt. Interior, P.O. Box 252, Albuquerque, earthwork, clearing, structures for irrigation rehab. of Socorro Units 1 and 2, Middle Rio Grand Proj., near Socorro, Spec. DC 4739, adv. ENR 8/9.

† **New Mexico**—BA 8/30—Bureau Reclamation, Dpt. Interior, P.O. Box 252, Albuquerque, earthwork, clearing, structures for irrigation rehabilitation of Belen Unit 1, Middle Rio Grande Proj., Spec. No. DC-4738, adv. ENR 8/9. CD 9/7/44.

Tex., Rosenberg—Bids Asked—Michigan Seamless Tube Co., South Lyon, Mich., hard paved auto parking center. $90,000.

Tex., Rosenberg—Bids Asked—Michigan Seamless Tube Co., South Lyon, Mich., sewers and drainage. $85,000.

Tex., Rosenberg—Bids Asked—Michigan Seemless Tube Co., South Lyon, Mich., water sys. $80,000.

BUILDINGS—BA

Iowa., Parkersburg—SCHOOL—BA 8/15—Bd. Educ., Parkersburg, school. $350,000. N. Clifford Prall, 621 Insurance Exchange Bldg., Des Moines, archt.

Minn., Proctor—SCHOOL—BA 8/15—Bd. Educ., J. Parmeter, clk., Junior High School addn. $344,000. Plans deposit $25. A. R. Melander, 603 Alworth Bldg., Duluth, archt. CD 8/10.

BUILDINGS—SLC

Tex., Mount Pleasant—PLANT—NeTex Poultry Process Plant, Inc., Mount Pleasant, soon lets contract, 1 story, 116x147 ft. structural steel, masonry poultry processing plant. $100,000. Louis B. Pohmert, Mount Pleasant, archt. CD 5/29.

HEAVY CONSTRUCTION—LB & CA

Clark Constr. Co., Eldon, Mo. CA **$109,000**. Sect. 1, 24,000 lin. ft. sanitary sewers, force main, Sect 2, pneumatic ejecter station, Sect. 3, oxidation basin, 24,000 cu. yd., HORNERSVILLE, MO. City, Curtis Huffines, clk., Hornersville, Mo. Bids July 6. CD 6/28.

Spot Martin, Inc., 3001 E. 83 St., Kansas City, Mo., CA **$83,197**. paving creek bed of Town Fork Creek channel from point west of Park Ave. to point near 60 St. and Wabash Ave., KANSAS CITY, MO. City, City Hall, Kansas City, Mo. Bids July 13 awarded July 20. CD 9/23/54.

Milton Rue Co., Bismarck, N. D. CA **$120,333**. Schedule I, storage reservoir and supply and distr. lines, BOTTINEAU, N. D. City, Bottineau, N. D. L. W. Burdick, 316 Cambridge St., Grand Forks, N. D., engr. Bids June 7,

George E. Haggart, Inc., 1403 First National Bank Bldg., Fargo, N. D. CA **$147,367**. Schedules II and III (Bottineau, N. D.).

Northern Improvement Co., 633 First St. Ave. N., Fargo, N. D. CA **$150,563**. airport imprvs., pavement, drains, relocating hangar, FARGO, N. D. City, Fargo, N. D. L. W. Burdick, 1017 N. Broadway, Fargo, N. D., consult. engr. Bids July 17. CD 10/21/54.

Omaha Public Power Dist., 17 and Harney Sts., Omaha, Neb., rejected bids June 22, constr. 25 mi. voltage line from North Omaha Power satation to South Omaha sub-station, OMAHA, NEB. Will re-advertise. CD 6/27, under LB **$399,914**.

▲ **TEXAS**—State Hy. Comn., Austin,

Tex.—Uvalde Contr. Co. & Harry Newton, Inc. P. O. Box 10286, Dallas, Tex., CA **$2,948,837** grading, structures, storm sewers and c. conc. 1.919 mi. Hy. U. S. 287, Proj. U 3 (10) and U. U G 3 (9) Wichita Co.;

Tex.—The Jarbet Co., Box 5008, Beacon Hill Station San Antonio, Tex., CA **$1,033,695**, grading, structures 1 & N. O. R. R. underpass, foundation course, flex. base, hot mix 11.303 mi. Proj. F (6) and FG 401 (7), Robertson Co. Bids July 18, awarded July 24. CD 7/23, under LB.

Farnsworth & Chambers Co., Inc., Box 74, Houston, Tex. CA **$46,000**, Phase 1, dirt work, raising ground level to 3½ ft. above existing level; CA **$110,000**, Phase 2, dirt work, earth filling as base for auto parking area, 100,000 cu. yd. at shopping center, BEAUMONT, TEX. Gulfgate Shopping City, c/o Theodore W. Berenson & Assocs., Bankers Mortgage Bldg., Houston, Tex. Irving R. Klein & Assocs., 1317 Austin St., Houston, Tex., Proj. archts.

N. H. Null Pipe Line Contractors, 215 Lockwood Dr., Houston, Tex., LB **$202,890**, est. $200,000 c. i. water line, LUFKIN, TEX. City, Lufkin, Tex. Freese, Nichols & Turner, 2111 C. & I. Life Bldg., Houston, Tex., engrs. Bids July 10. CD 7/3.

COLORADO—State Hy. Dpt., 4201 E. Arkansas St., Denver,

Peter Kiewit Sons' Co., 1950 S. Colorado Blvd., Denver, Colo., CA **$827,661**, est. $838,000. stab. asph. surf. 12.801 mi. Colo. Proj. IN 002-2 (42) El Paso Co. Bids July 20. D 7/13.

Power Plants Speed Construction
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† **Frederick Raff Co.**, P. O. Box 1460, Colorado Springs, Colo., LB **$558,000**. sewage treatment plant, at Air Force Academy Site, IFB 05-613-56-20, COLORADO SPRINGS, COLO. Dpt. Air Force, Box 1670 Colorado Springs, Colo. Bids June 12. CD 6/5.

C. M. Hanes Constr. Co., 110 W. 13 Ave., Denver, Colo., CA **$94,615. bridge and approaches over Cherry Creek**, on 6 Ave., DENVER, COLO. City and Denver Co.; City and County Bldg., Denver, Colo. Bids July 17, awarded July 20. CD 7/16.

BUILDINGS—LB & CA

H. Dornack, 812 S. E. 3 St., Rochester, Minn. CA **$685,000**. plumbing, heating and controls contracts for SENIOR HIGH SCHOOL, ROCHESTER, MINN. Bd. Educ., R. W. Dorsett, bus. mgr., Rochester, Minn. CD 7/3, under LB,

Foster Electric Co., 211 First Ave. S. W., Rochester, Minn. CA **$585,720**. electrical work (Rochester, Minn.).

▲ **Austin Building Co.**, 1000 Singleton Rd. and P. O. Box 1590, Dallas, Tex. CA Est. **$3,000,000**. brick, concrete bldg. 55 ft. semi-enclosed type structure to house 20,000 kw GENERATING UNIT auxiliaries, appurtenances, boilers, outside brick office east of city limits, DODGE CITY, KAN. Western Light & Telephone Co., E. C. Rohrbaugh, production mgr., Great Bend, Kan. CD 1/5.

Fretz Constr. Co., Box 18094, Houston 23, Tex. CA **$429,210**. STORE addns., alterations, HOUSTON, TEX. Brown Securities Corp., 4100 Clinton Dr., Houston, Tex. Brown & Root, Inc., 4600 Clinton Dr., Houston, Tex., archt.-engr. Bids July 12.

▲ **Tellepsen Constr. Co.**, 1710 Telephone Rd., Houston, Tex., CA **$2,250,000**. 15 story, MERCANTILE OFFICE and GARAGE, across Travis St., HOUSTON, TEX. Melvin A. Silverman & Assocs., 2923 Shenandoah St., Houston, Tex. Bids June 5. CD 6/19, under LB.

J. L. Craft, Bono, Ark. Purchase and Hire. **$95,500**. SYRUP PROCESSING PLANT, WAXAHACHIE, TEX.

Ellis County Grain & Storage Co., Waxahachie, Tex. Own Forces. **$95,500**. 2nd GRAIN ELEVATOR, WAXAHACHIE, TEX. CD 7/24.

Arthur R. Phipps, 350 Lorey Dr., Grand Junction, Colo., CA **$127,280**. REA HEADQUARTERS, GRAND JUNCTION, COLO. Grand Valley Rural Power Lines, Inc., 120 N. 7 St., Grand Junction, Colo. Bids July 17, awarded July 20. CD 6/26.

FAR WEST

HEAVY CONSTRUCTION—LB & CA

† **IDAHO**—U. S. Forest Service, Forest Service Bldg., St. Anthony,

MacGregor-Triangle Co., P. O. Box 428, Boise, Idaho. LB **$166,144** (6 bidders) clearing, grubbing, grading, drainage 12 mi. Black Canyon timber access road, Sect. A Proj. 969, Fremont Co. Bids July 19. CD 7/5.

Close Building Supply Co., 721-"C" St., Hayward, Calif., LB **$80,951**, realigm and widen "A" St., from Castro to Foothill Blvd., HAYWARD, CALIF. City, City Hall, Hayward, Calif. Bids July 1. CD 4/12.

Pacific Pavements Co. Ltd., 85 Barstow St., San Francisco, Calif., LB **$110,780** (6 bidders) resurf. Westwood Park streets, etc. SAN FRANCISCO, CALIF. City and San Francisco Co., c/o Dir. P. Wks., City Hall, San Francisco, Calif. CD 3/18/43.

Maggiora & Sons, 7 Harrison Ave., Sausalito, Calif., CA **$124,963** (4 bidders) sewage force main, Francisco Blvd., SAN RAFAEL, CALIF. San Rafael Sanitary Dist., c/o city clerk, City Hall, San Rafael, Calif. CD 6/10/48.

Sauza & McCue, P. O. Box 325, Yuba City, Calif., LB **$365,488** (7 bidders) sanitary interceptor sewer, SANTA CLARA, CALIF. City, City Hall, Santa Clara, Calif. E. C. Schott, Santa Clara, Calif., city engr. CD 11/20/52.

BUILDINGS—LB & CA

G. E. Teufel Co., White-Henry-Stuart Bldg., Seattle 1, Wash., CA **$583,000**. 2 story, 44,000 sq. ft. OFFICE addn., SEATTLE, WASH. General Insurance Co., E. 45 St. and Brooklyn Ave., Seattle 5, Wash. Bids July 12. CD 7/23, under LB.

Halvorson Constr. Co., 20054 Pacific Hy. S., Seattle, Wash., CA Est. **$400,000** each. two 19,200 sq. ft. FOOD CENTERS, one at 72nd St. and Pacific Ave. and other at Lakewood Square, TACOMA, WASH. Albertson's Food Centers, Inc., 1610 State St., Boise, Idaho. CD 5/9.

Associated Constr. & Eng. Co., 2903 Geneva Ave., San Francisco, Calif., CA **$298,000**. WAREHOUSE and OFFICE at Millsdale, BURLINGAME, CALIF. Frank Edwards Co., 382 6th St., San Francisco, Calif.

Harris Constr. Co., P. O. Box 108, Fresno, Calif., CA **$932,386**. 1 story, 100,000 sq. ft. steel, concrete FACTORY, OFFICE and WAREHOUSE, PORTERVILLE, CALIF. Porterville Civic Development Foundation, 520 N. Main St., Porterville, Calif. Bids July 16, awarded July 18. CD 7/6.

CANADA

BUILDINGS—BA

Ont., Toronto—GALLERY—BA 8/23—University of Toronto, Simcoe Hall, double size of Canadian Gallery, Queens Park Crescent. $500,000. Plans deposit $25. Mathers & Haldenby, 15 St. Mary St., archts. CD 1/28/55.

BUILDINGS—SLC

Ont., Stratford—OFFICE, etc—Bell Telephone Co. of Canada, Ltd., 76 Adelaide St. W., Toronto, soon lets contract 1 story, 192x258 ft. prestressed concrete structure, concrete block walls, office, garage and warehouse, Romeo St. $350,000. Prack & Prack, 310 Main St., E., Hamilton, archts.

Que., Montreal—PLANT—Canadian Copper Refiners, Ltd., Durocher Ave., Montreal East, soon lets contract, plant exten., superstructure to tank house and casting bldg. and 5 small extens. to existing bldgs. $200,000. J. Mellor, c/o owner, engr.

HEAVY CONSTRUCTION—LB & CA

Cornish Constr. Ltd., 81 King St. W., Oshawa, Ont., CA **$109,890**, 4,000 lin. ft., 27, 30 and 33 in. sanitary sewer, appuraenances; 850 lin. ft. 14 in. c.i. force main, Contr. A, BURLINGTON, ONT. Twp. of Nelson, Burlington, Ont. Bids July 9, awarded July 20. CD 6/29.

Sir Robert McAlpine & Sons (Canada), Ltd., Challenge Rd., Toronto, Ont. CA Approx. **$500,000**. 26,000 lin. ft. 6- to 12-in. water mains; 17,000 lin. ft. 10- to 21-in. sanitary sewers; 6,300 lin. ft. 10- to 42-in. storm sewers; sewer services 350 sets, Erindale Woodlands Subdivision, TORONTO, ONT. Erindale Developments, Ltd., 2461 Bloor St. W., Toronto, Ont., Franklin McArthur Assocs., Ltd., 38A Mattson Rd., Downsview, Ont., engr. Awarded July 19.

A. Janin & Co., Ltd., 1460 Sherbrooke St. W., Montreal, Que., CA Approx. **$500,000**, 2nd phase, power development. Shipshaw River, near Kenogami, QUEBEC. Price Bros. & Co., Ltd., 65 Ste. Anne St., Quebec City, Que. Montreal Eng. Co., Ltd., 244 St. James St., W., Montreal, Que., engrs. Awarded July 19. CD 1/4.

▲ **Maritimes Steel & Foundries Ltd.**, New Glasgow, N. S., LB **$2,289,460**. wire rope fenders supply and erection at locks of St. Lawrence Seaway, MONTREAL, QUE. St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont. A. G. Murphy, 685 Cathcart St., Montreal, owners' ch. engr.

BUILDINGS—LB & CA

Connolly Constr. Ltd., 782 King Ave., Bathurst, N. B. CA **$125,000**. 1 story, 90x160 ft. concrete block, steel PLANT exten., concrete fdn., BATHURST, N. B. Bathurst Power & Paper Co. Ltd., Bathurst, N. B. F. W. Buckley, c/o owner, archt. Awarded July 18.

▲ **B. Perini & Sons (Canada) Ltd.**, 49 Jackes Ave., Toronto, Ont., CA **$4,500,000**. MILL at Uranium mine in BLIND RIVER, ONT. Can-Met Explorations Ltd., Rayal Bank Bldg., Toronto, Ont. R. M. Way & Co. Ltd., 321 Ballor St. E., Toronto, Ont., engr. Awarded July 23.

Bennett-Pratt, Ltd., 5 Maple Leaf Dr., Weston, Ont., CA **$500,000** (9 bidders) MARKETING BLDG. and tank farm, comprising 5 bldgs., 75,000 sq. ft., Keele St. and Finch Ave., TORONTO, ONT. Imperial Oil Co. Ltd., 150 Laird Dr., Toronto, Ont. Awarded July 19. CD 6/28.

▲ **Foundation Co. of Canada Ltd.**, 1220 Bay St., Toronto, Ont., CA Est. **$3,000,000**. 15,000 sq. ft. FACTORY, Martingrove Rd., TORONTO, ONT. Hygrade Containers Ltd., c/o. Canadian International Paper Co. Ltd., Sun Life Bldg., Montreal, Que. Awarded July 24. CD 6/12.

LATIN AMERICA

BUILDINGS—LB & CA

▲ **Puig Hermanos, C. A.**, Edificio Galipan 19 Av. Francisco de Miranda, Caracas, D. F., Venezuela, LB, **$5,458,486** (4 bidders) 600-bed wing Maracaibo GENERAL HOSPITAL, MARACAIBO, VENEZUELA. Ministry of P. Wks., Caracas, D. F., Venezuela.

FOREIGN

BUILDINGS—LB & CA

▲ **Taylor Woodrow Constr. Ltd.**, 10 Park St., London W. 1, England, CA. **$9,100,000**. POWER STATION at Marnham, NOTTINGHAMSHIRE, ENGLAND. Central Electricity Auth., Trafalgar Bldgs., London S.W. 1, England.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Elsinore—Elsinore Valley Municipal Water Dist. 1, voted **$700,000** bonds July 10, for water distr. system.

▲ **Calif., Santa Cruz**—City, City Hall, storage dam at Rodeo Gulch. **$5,500,000**. Brown & Caldwell, 66 Mint St., San Francisco, consult. engrs.

▲ **Colo., Denver**—Denver Water Bd., City & County Bldg., Denver, 3 mi. Jones Pass Tunnel Water Diversion Proj. **$3,940,000**. Tipton & Kalmbach, Inc., Insurance Bldg., engr. CD 8/12.

▲ **Colo., Denver**—Bd. Water Comrs., City and County of Denver, City & County Bldg., Williams Fork concrete arch dam. **$2,900,000**. Tipton & Kalmbach, Inc., 200 Insurance Bldg., consult. engr. CD 8/12.

▲ **Colo., Englewood**—City, City Hall, Ranch Creek Transmountain Diversion. **$4,600,000**. Tipton & Kalmbach, Inc., 200 Insurance Bldg., Denver, consult. engr.

Idaho, Garden City—City, voted **$400,000** bonds, water and sewerage sys. extens. Carlyle Briggs, city engr. CD 6/26.

Kan., De Soto—City, Jess W. Johnson, Jr., city clk., WW imprvs., incl. addnl. wells, supply facilities, 300 g.p.m capacity, storage and pumping facilities; water treatment plant, clarifier, filters, pumping equip., clear well, piping, etc. and new line treatment plant to elevated storage tank. **$106,425**. H. R. Hunter, 1923 E. Central St., Wichita, consult. engr.

Ky., Erlanger—City, City Bldg., will not construct water plant, distr. sys. **$650,000**. James Viox, Erlanger Rd., consult. engr. CD 3/1/55.

Ky., Pineville—Pineville Water Co., water distr. sys. 6 in. and 8 in. distr. mains and source main. **$150,000**. Howard K. Bell & Assoc., 553 S. Limistone St., Lexington, consult. engrs. Bids in 2 months.

O., Glendale—Village, Sharon Ave., Cincinnati, improve WW. **$100,000**. Vogt, Ivers & Seaman & Assoc., 34 W. 6, Cincinnati, consult. engrs. Bids late in fall.

O., Upper Sandusky—Village, Bd. Public Affairs, bond election Nov. 6, water storage reservoir, **$120,000**.

▲ **Tex., Beaumont**—City, water supply, over **$1,000,000**; water storage **$100,000**; water lines, **$250,000**. CD 11/15.

Tex., Houston—Fresh Water Supply Dist. 36, c/o Frank J. Metyko, Scanlan Bldg., voted bonds July 14; c.i. water lines, **$109,900**; water storage, prob elevated, **$60,000**, near here. CD 1/11/52.

Tex., McAllen—City, voted bonds July 14, water pumping plant expansion, **$70,000**; water lines, **$500,000**; WW rehabilitation, **$60,000**; water storage, **$75,000**; water supply, **$100,000**. CD 6/18.

Tex., Nederland—City, voted **$212,000** bonds, WW. CD 6/14.

Que., St. Maurice—Municipality of Yamachiche, Yamachiche Co., WW imprvs., in municipality, **$200,000**. J. A. M. Langlois, 128 Radisson St., Three Rivers, consult. engr.

Que., Tring Junction—Municipality of Tring Junction, WW project. **$100,000**. Zachee & Pierre Langlais, 105 Cote de la Montagne, Quebec City, consult. engrs.

SEWERS, WASTE DISPOSAL

Calif., Concord—City, City Hall, expansion of sewage treatment plant, digester, settling tank and 2 new trunk sewers and their installation. **$115,530**. F. A. Steward, City Hall, city engr.

Conn., New Haven—City, sewage settling tanks, **$100,000**; sewage digester plant, **$225,000**. Wm. Bolton, city engr. CD 8/20/43.

▲ **Ill., East St. Louis**—City, Mayor Alvin G. Fields, City Hall, sewage treatment plant. **$10,000,000**.

▲ **Mich., Ann Arbor**—Washtenaw Co., John H. Floock, co. drain comr., 415 N. Washington St., Beyer Drain 1,200 acres, **$1,520,944**; Hamilton Tile Drain, **$178,000**; Forest-East Grand Blvd. section Drain, **$350,000**, Ann Arbor Twp. Total est. $2,048,944, McNamee, Porter & Seeley, 306 State Savings Bank Bldg., Ann Arbor, consult. engrs. CD 2/29.

Mich., Utica—City, City Council, Mayor Donald R. Havel drains and sewers, street paving. **$350,000**. Bids March 1957.

Minn., Slayton—City, R. M. Ingebretson, clk., sewage treatment plant, probably late 1956 or 1957, **$200,000**. Hitchcock & Estabrook, 2101 W. 78 St., Minneapolis, consult. engrs.

Neb., Norfolk—City, sewage plant. **$100,000**. L. A. Daly Co., Insurance Bldg., Omaha, consult. engrs. CD 6/11/43.

▲ **N. J., Trenton**—City, City Hall, sewage disposal plant addn. **$4,000,000**. Bogert & Childs, 145 E. 32 St., New York, N. Y., consult. engrs. P. N. Daniels, 56 Maple Ave., assoc. engr. CD 1/13.

▲ **N. J., Trenton**—Comrs. Hamilton Twp., 2090 greenwood Ave., sewer extens. and pumping stations. **$1,730,000**. A. J. Lanning, 1100 S. Broad St., engr.

N. Y., Niagara Falls—City, City Hall, sewage treatment plant, **$900,000**. CD 10/2/50.

▲ **O., Cleveland Heights**—City, City Hall, 2953 Mayfield Rd., Zone 18, municipal bond election Nov. 6 for sewers. **$1,000,000**. H. C. Gallimore of Pease Eng. Co., 3482 Lee Rd., consult. engr. CD 3/27.

O., Dayton—City, Herbert W. Starick, mgr., sanitary sewer in Broadway from Nicholas to Miami Chapel Rds., **$271,285**. CD 10/23/45.

O., Hubbard—Village, bond election Nov. 6, sanitary and storm sewers, **$200,000**. CD 11/28.

O., Maple Heights and Garfield Heights—Cities of Maple Heights and Garfield Heights, City Halls, 72-in storm sewer, 139 and Wolf Rd. to Wolf Creek, **$110,000**. Willard F. Schade & Assoc., Chester-12th Bldg., Cleveland Zone 14, consult. engrs. CD 10/10/52 under O., Maple Heights.

O., Parma—City, Fred Newcomb, service dir., City Hall, 6611 Ridge Rd., Zone 29, **$5,000,000**. bond election Nov. 6, sewer imprvs. Burt Chabek of Verne Clarke Eng. Co., 4050 Brookpark Rd., Cleveland, Zone 29, consult. engrs. CD 11/5/54.

O., Plymouth—Village, $150,000 bond election Nov. 6, to help finance sewage disposal plant and intercepting sewer lines, **$485,000**. CD 11/5/54.

▲ **O., Sandusky**—City, City Hall, bond election Nov. 6, sewage treatment plant, intercepting sewers, **$2,000,000**. Jones, Henry & Williams, Security Bldg., Toledo, consult. engrs. CD 1/17/50.

Tex., Dallas—T. K. Irwin & Ralph B. Leonard, c/o Mercantile Commerce Bldg., storm sewers, **$77,000**; sanitary sewers, **$80,000**, in Red Bird Village Subdivision, near Duncanville.

(Continued on page 106)

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BARBERTON, OHIO

IN CANADA: THE RIC-WIL COMPANY OF CANADA LIMITED

(Continued from page 104)

Tex., Houston—John Baldwin, c/o Braeburn Glen Subdivision, 3218 Roland St., sanitary sewers, **$75,000;** storm sewers, **$75,000,** in Braeburn Glen 900-Home Subdivision.

Tex., Houston—City, City Hall, sections of storm sewers in portions Pampa, Dixie, Culberson and Del Rio Sts., **$227,600;** sanitary sewers in N. Braeswood St., **$222,200.** Frank Baldwin, dir. P. Utilities Eng. CD 2/2.

Tex., Houston—City, sanitary sewerage system Ella Blvd., and W. 11 Sts., **$82,500;** sanitary sewers between Balmers, Tidwell, Plymouth. **$170,000;** sanitary sewers to serve areas of Sherwood Forest and Bayou Woods, **$124,600;** storm sewers in Irvington, Rosalee to Frawley and Alber, Billingsley to Irvington, **$75,000.** John Turney, 2502 S. MacGregor, consult. engr. Frank Baldwin, Director Public Works, engr. CD 2/2/56.

Tex., Houston—Fresh Water Supply Dist. 36, c/o Frank J. Metyko, Scanlan Bldg., voted bonds July 14, storm sewers, drainage, **$82,500;** sanitary sewers, **$87,600.** CD 1/14/52.

Tex., Houston—Robert F. Harris, 2114 W. Holcombe Blvd., storm sewers, **$75,000;** sanitary sewers, **$77,110,** in a 216½-acre tract off Old Galveston Rd. named Arlington Heights.

Tex., Houston—Prokop Building Co., Inc., 6903 Long Point, sanitary sewers, **$77,000;** storm sewers, **$75,000,** in a section of Windsor Village.

Tex., Longview—Longview Industrial Dists., Inc., c/o Rob. Cargill, Longview, sanitary sewers, **$78,000;** storm sewers, **$75,000.** (project is industrial development of a 237-acre tract).

Tex., McAllen—City, voted bonds July 14, sewage disposal unit, **$90,000.;** sanitary sewerage system rehabilitation work, **$75,000;** sanitary sewer lines, **$490,000.;** storm sewers, **$100,000.** CD 6/18/56.

Tex., Nederland—City, voted **$117,000** bonds sanitary sewers. **CD 6/14.**

Tex., Nederland—H. P. Youmans & Assoc., Stage No. 1, storm sewers, **$75,000;** sanitary sewers, **$78,000,** (800-Residential area Subdivision. 205-acre tract).

Wash., Puyallup—City, City Hall, bond election Sept. 11, storm drains. **$275,000.** Gray & Osborne, 228 S. 2 St., Yakima, consult. engrs. CD 2/29.

Wash., Seattle—City, County-City Bldg., alki point treatment plant, **$600,000.** Hammond, Collier & Isaac, 4010 Stone Way, consult. engrs. W. E. Parker, city engr. CD 3/27.

Wis., Waukesha—City, sanitary sewers in Westowne area, **$200,000.** W. E. Dick, city engr.

Ont., Brampton—Ontario Water Resources Comn., 67 College St., Toronto, sewage treatment plant of activated sludge type 750,000 g.p.d., **$380,000;** trunk sewers, **$520,000.** Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, consult. engrs.

▲ **Ont., Cooksville**—Ontario Water Resources Comn., 67 College St., Toronto, activated sludge type sewage plant, large trunk sewer. **$3,000,000.** Gore & Storrie, Ltd., 1130 Bay St., Toronto, consult. engrs.

BRIDGES

Calif., Richmond—City, City Hall, underpass Santa Fe R.R. tracks 14 St., 2 traffic lanes and elevated pedestrian walk, **$200,000.**

CONNECTICUT—State Hy. Dpt., 165 Capitol Ave., Hartford,

Litchfield Co.—permanent bridge at East Albert St. over Naugatuck River, Torrington. **$400,000.**

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Houghton Co.—1,310 ft. double deck vertical lift bridge with 255 ft. center lift span incl. 400 hp. electric motor, over Portage Lake, Hancock-Houghton. **$7,000,000,** Carlos A. Weber, ch. engr.

OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City,
Payne Co.—bridge over Euchell Creek on Hy. 33, Cushing, **$300,000.** G. H. Bittle, engr.

OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,

Oklahoma Co.—bridge over N. Canadian River on W. Reno Ave., Oklahoma City. **$300,000.**

Tex., Houston—City, grade separation on Shepherd Dr. over Memorial & Buffalo Dr. **$700,000.** Freese, Nichols & Turner, C&I Life Bldg., consult. engrs. CD 3/1.

NEW BRUNSWICK—Dpt. P. Wks., Parliament Bldgs., Fredericton,

Hartland—bridge over St. John River. **$100,000.**

Fredericton—bridge over St. John River. **$100,000.** Foundation of Canada Engineering Corp., Ltd., 1980 Sherbrooke St. W., Montreal, Que., consult. engrs.

▲ **Que., Montreal**—City, City Hall, ramp, east side Jacques Cartier Bridge from St. Helen's Island **$450,000.** Letendre Monti & Assocs., 2075 Mansfield St., consult. engrs, viaduct under Canadian Pacific Ry. tracks at Masson St., **$500,000;** viaduct under Canadian Pacific Ry. tracks at Blvd. Henri, Bourassa, **$500,000.** Beaulieu, Trudeau, Dubuc, Lalancette & Beaulieu, 5810 Cote St. Luc Rd., consult. engrs.; tunnel and two overpasses with intersection built on three levels at Park and Pine Aves. **$1,000,000.**

STREETS AND ROADS

Calif., Vallejo—City, City Hall, imprv. city streets. **$478,000.**

CONNECTICUT—State Hy. Dpt., 165 Capitol Ave., Hartford,

Hartford Co.—Widen Front and State Sts., addnl. lane for Hartford bound traffic off Bulkeley bridge. Hartford. **$200,000.**

New London Co.—Old Lyme Shore Rd. cut-off between Lieutenant River Bridge at Ferry Rd. to Shore Rd., Old Lyme. **$100,000.**

ILLINOIS—State Hy. Dpt., Springfield,
St. Clair Co.—asph. resurf. 5 mi. W. Main St., Belleville. **$400,000.** CD 12/13, under Ill., Belleville.

Minn., St. Paul—City, G. M. Shepard, city engr., pave Wabasha St., from 8 St. to Columbus Ave. **$132,000.** CD 9/15/43.

N. J., Toms River—Bd. Freeholders Ocean Co., Court House, imprvs. 30 county roads. **$600,000.** Lawrence F. Wagner, Court House, consult. engr.

OHIO—State Hy. Dpt., Columbus, Zone 15,
Richland and Crawford Counties—relocation of 27 mi. U. S. Rte. 30-N end of new Mansfield bypass west to beyond Bucyrus, Shaffer, Parrett & Assoc., 137 Lexington Ave., Mansfield, consult. engrs.

O., Amberley Village—M. D. Mayer, Aracoma Forest Dr., Cincinnati, will not construct street off Ridge Rd. **$100,000.** Project cancelled. CD 9/15.

▲ **O., Cleveland**—Comrs. Cuyahoga Co., Court House, **$3,000,000** bond election Nov. 6, imprv. roads to Warrensville site of Pan-American Games. Albert S. Porter, Standard Bldg., Cleveland, Zone 13, co. engr. CD 11/10.

▲ **O., Fairfax (Cincinnati)**—Village, **$1,400,000.** bond election Nov. 6, street and sewer imprvs. Larson-McKinney & Miller, Ninth and Main Sts., Cincinnati, consult. engrs.

OKLAHOMA—State Hy. Dpt., Capital, Oklahoma City, Zone 5,

McClain Co.—bypass paving for U. S. 77 on Fifth St. in Purcell. **$165,000,** G. H. Bittle, engr.

OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City,
Osage Co.—b. conc. Hy. 20 in Hominy for 1.8 mi. **$110,000,** G. H. Bittle, engr.

OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City,
Creek Co.—grade, drain 2 mi. for bypass on Hy. 33 at Drumright. **$150,000.**

Oklahoma Co.—grade, pave west bypass from Reno to N. W. 39 St., Oklahoma City. **$400,000.** G. H. Bittle, engr.

Tex., Nederland—City, voted bonds street improvements, paving. **$600,000.** CD 6/14.

Ont., London—London Suburban Roads Comn., **J. Carson,** chn., County Bldgs., 4-lane hy. from city limits to new super highway (401) 6 mi. south. **$250,000.** Charles Corbett, Lucan P.O., c/o owner, engr.

(Continued on page 108)

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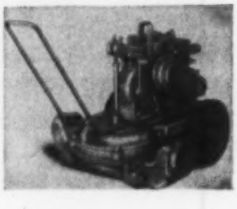
CMC's large variety of types and sizes of pumps — assure lower cost water handling on any construction job! At left, 10" Dual Primer; at right, SKWEE-GEE diaphragm.



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Air-Tool Maintenance Tips That Help Keep Costs Down

by LE ROI

Not many machines take the beating that rock drills and paving breakers do. Steel strikes steel 2,000 blows a minute, with a cumulative impact of 40,000 foot-pounds every 60 seconds.

Despite the rough usage rock drills get, preventive maintenance pays off. Here are a few of the basic things you can do easily—to keep your tools running longer and keep your costs down.

★ ★ ★

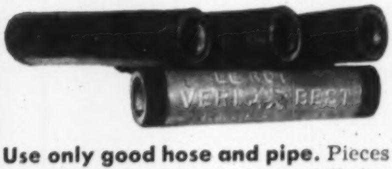
Le Roi-Cleveland automatic air-line oiler and 10-ft whip hose. Capacity one quart

(Right) New 2-gallon air-line oiler. Automatic. Designed for wagon-drill and jumbo service.

See that your machines get plenty of oil. This is of vital importance. There are no piston rings in a rock drill, so the piston must fit the cylinder with practically zero clearance. If lubrication is neglected, hardened steel parts score and break.

Fill the integral lubrication chamber in the drill at the start of each shift and after every 3 hours of operation. Better yet, use a Le Roi-Cleveland air-line lubricator placed 10 feet from the machine. This type of lubricator needs filling only once each shift; the flow of oil can be adjusted as desired.

Le Roi-Cleveland Veribest rock drill hose Oil- and heat-resistant.

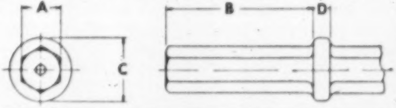


Use only good hose and pipe. Pieces of rubber from oil-rotted hose will clog your drill so that it can't run. Scale from old rusty pipe can score the cylinder of your machine and result in expensive repairs.

We recommend the use of Le Roi-Cleveland "Veribest" hose. It was designed especially for rock drill service, with an abrasion-resistant outer cover and a special inner liner that resists the corrosive action of oil and hot air.

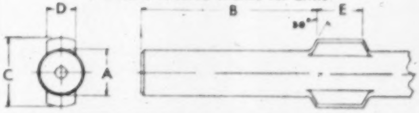
Be sure your drill steel shanks are properly sized and tempered. Undersized shanks cause rapid chuck wear that leads to broken pistons. Short shanks and long shanks reduce the force of blow — slow down your drilling. Shanks that are too soft stick in the machine. And, when they are too hard, they cause the piston to spall. This may ruin a drill cylinder. Poor shanks are expensive.

Follow these diagrams for correct shank sizes and temper them in oil.



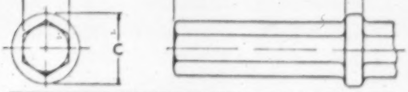
NOMINAL SIZE	A	B	C	D
7/8 HEX. x 3 1/4	7/8	3 1/4-3 5/16	1 3/8	3/8
7/8 Q.O. x 3 1/4	7/8	3 1/4-3 5/16	1 3/8	3/8
1 HEX. x 4 1/4	1	4 1/4-4 5/16	1 1/2	3/8
1 Q.O. x 4 1/4	1	4 1/4-4 5/16	1 1/2	3/8

Standard collared shanks for drills



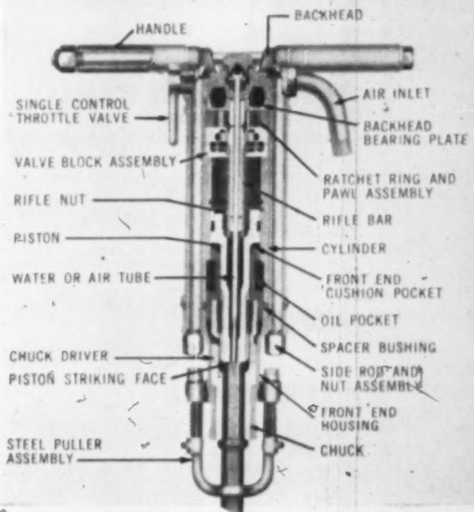
NOMINAL SIZE	A	B	C	D	E
1 LUG	1	3 13/16-3 7/8	1 1/2	5/8	1
1 1/8 LUG	1 1/8	3 13/16-3 7/8	1 3/4	3/4	3/4
1 1/4 LUG	1 1/4	3 13/16-3 7/8	1 7/8	13/16	3/4
1 1/2 LUG	1 1/2	5 -5 1/16	2 1/4	1	1

Standard lug shanks on round steel.



NOMINAL SIZE	A	B	C	D
1 HEX. x 4 1/4	1	4 1/4-4 5/16	1 1/2	3/8
1 1/8 HEX. x 6	1 1/8	6 -6 1/16	1 3/4	1/2
1 1/4 HEX. x 6	1 1/4	6 -6 1/16	1 3/4	1/2

Standard collared shanks for paving breakers.

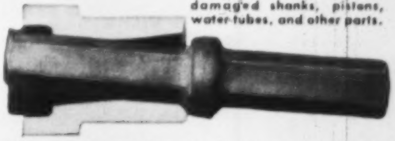


The principal parts of a rock drill.

Correctly faced pistons and shanks stand unsupported.

Keep the striking faces of pistons and shanks square. In time, wear will tend to cup the piston face. When this occurs, the face should be ground until it is flat. Shanks should be square, too, if excessive piston damage is to be avoided.

Don't use worn chucks. A worn chuck allows the drill steel to become misaligned in the machine. As a result, the piston strikes the sharp corners of the drill shank, and you have the cost of a broken piston in addition to the loss of footage.



Badly worn chucks lead to damaged shanks, pistons, water tubes, and other parts.

Use sharp bits. Dull bits bind in the hole and slow down the drilling. They also cause excessive strains on the machine and rapid wear of all rotating parts.

Le Roi-Cleveland one-use CRD detachable bits.

Le Roi-Cleveland developed the "one-use" CRD detachable bit, so that rock-drill operators can use sharp bits all the time at a considerable saving.

• • •

Yes, preventive maintenance pays off. If you'd like to post these tips as a reminder to your drill runners, a supply of reprints will be sent you free of charge. Just write for them.

LE ROI Division of Westinghouse Air Brake Co., Milwaukee 1, Wisconsin, manufacturers of Cleveland air tools, Tractair, portable and stationary air compressors, and heavy-duty industrial engines. Write us for information on any of these products.

(Continued from page 106)

EARTHWORK, WATERWAYS

▲ **Arizona**—Salt River Project, 2 St. at Van Buren, Phoenix, lining 15 mi. canals, **$1,500,000**; building 52 canal turnout structures, **$217,000**; lining 300 mi. project laterials, **$6,000,000**; tiling 50 mi. laterals, **$1,413,000**; building 500 lateral turnout structures, **$600,000**; rehabilitation of hoists, gates and abutments at Granite Reef Dam, **$200,000**; rehabilitating project wells, **$5,000,000**.

▲ **New Brunswick**—New Brunswick Power Comn., Fredericton, N. B. and State of Maine, Augusta, Me., U. S. A., hydro-electric station, Passamaquoddy Bay, mouth of St. Crois River in southwestern New Brunswick. **$3,000,000**.

AIRPORTS

▲ **Que., Riviere du Boup**—AIRPORT—Dpt. Transport, Hunter Bldg., Ottawa, Ont., airport. **$2,500,000**.

LATIN AMERICA

▲ **Mexico, Mexico City**—CINEMAS—Operadora de Teatros, Cine Alameda, Mexico City, plans two cinemas. **$1,500,000**.

Mexico, Monterrey—HOUSING—Banco Nacional Hipotecario y de Obras Publicas, Mexico City, plans 3,000 houses for railroad workers. **$720,000**.

Mexico, Saltillo—FACTORY—Moto-Islo, S. A. Saltillo, Coahuila, plans motorcycle factory. **$600,000**.

Mexico, Saltillo—PLANT—Petroleos Mexicanos, 94-98 Juarez, Mexico City, plans carbinates separating plant. **$800,000**.

▲ **Venezuela**—MAINE TERMINAL—Creole Petroleum Corp., Caracas, plans marine terminal for tanker loading at Lake Maracaibo, **$17,000,000**. Pipe Line Eng. Co., P. O. Box 13,227, Dallas, Tex., U. S. A., consult. engrs.

PUBLIC BUILDINGS

Ark., Conway—STUDENT CENTER—Arkansas State Teachers College, Conway, plans by Bruce R. Anderson, Wallace Bldg., Little Rock, student center, **$350,000**. CD 12/3/52.

▲ **Calif., Berkeley**—ENGINEERING SERVICE—University of Calif., c/o Bd. Regents, Admin. Bldg., plans by John C. Warnecke, 111 Montgomery St., San Francisco, engineering service bldg., at University of Calif. Campus, **$1,030,000**.

Calif., Fairfax—SCHOOLS—Fairfax Elementary School Dist., bond election Nov. 6, new elementary schools and addns. to present schools, **$750,000**.

Calif., Fresno—SCHOOL—Fresno Unified School Dist., c/o Secty., 2348 Mariposa St., plans by Benjamin F. Lippold, 1272 Wishon St., frame, stûcco Centennial Elementary School. **$390,000**. CD 6/14/54.

Calif., Lemoore—SCHOOL—Island-San Jose Union Elementary School Dist., 20800 Fremont Rd., voted **$405,000** bonds, elementary school. CD 3/22.

▲ **Calif., Long Beach**—COUNTY—Los Angeles Co., Hall of Records, plans by Francis J. Hensel & Kenneth S. Wing, 730 E. 3 St., constr. Long Beach County Bldg., **$4,815,250**. CD 3/16/54.

▲ **Calif., San Jose**—JUVENILE HALL—Santa Clara Co., c/o Bd. Supervisors, Court House, plans by Allan M. Walter & Assoc., 45 E. William St., rein.-conc. Juvenile Hall. **$1,270,000**.

Colo., Boulder—INFIRMARY—University of Colo., student infirmary. **$800,000**.

Colo., Longmont—SCHOOL—Bd. Educ., School Dist. No. 17, 820 Main St., voted **$385,000** bonds, elementary school. CD 5/18.

▲ **Conn., Bristol**—SCHOOL—Town, School Bldg. Comn., Town Hall, plans by Harold A. Hayden, 157 Main St., high school addn. and alterations to existing bldg., **$3,725,000**. John P. Legnos Assocs., 30 Gillette St., Hartford, consult. engrs. A. B. Onderdonk, 119 New London Turnpike, Glastonbury, engrs. CD 6/22/55.

Conn., Darien—SCHOOL—Town, north-west elementary school, Allwood Rd. **$600,000**.

▲ **Conn., Hamden**—SCHOOL—Town, Bd. Educ., 2040 Dixwell Ave., plans by Warren H. Ashley, 967 Farmington Ave., West Hartford, Junior High School, Washington Ave. **$2,600,000**. Arthur C. Beaulieu Assoc., 2348 Whitney Ave., consult. engrs. Hubbard, Lawless & Blakeley, 110 Whitney Ave., New Haven, owners engrs. CD 6/26.

Conn., New Haven—FOOD SERVICE—State Pub. Wks. Dpt., 165 Capitol Ave., Hartford, plans by Carl Blanchard, 111 Whitney Ave., food service bldg. and students' commons, New Haven Teachers College, $675,000. CD 6/29.

Conn., New Haven—SCHOOL—Town, constr. Junior High School, Hill District. **$500,000**. CD 6/22/54.

Conn., Southbury—LAUNDRY, etc.—State Public Works Dpt., 165 Capitol Ave., Hartford, addition to laundry facilities, **$148,500**; water supply improvement, **$84,100**, at Southbury Training School. P. J. Carroll, State Pub. Works Dpt., engr. CD 2/7/49.

Conn., Wethersfield—HIGH SCHOOL—Town, 12 room high school addn. **$700,000**.

Conn., Waterbury—SCHOOL—Town, 12 room addn. to Bucks Hill School, **$344,739**.

Del., Selbyville—SCHOOL—Selbyville School Dist. plans by Pope & Kruse, 911 Washington St., Wilmington, **$360,000**. Bids November. CD 7/16/52.

▲ **D. C., Wash.**—HOUSING—National Capital Housing Auth., 1729 New York Ave. N.W., plans by Chatelain, Gauger & Nolan, 1727 K St. N.W., 142 housing units, "P" St., S.W. area DC-1-24, **$1,364,904**, (incl. equipment).

Ill., Chicago—SCHOOL—Bd. Educ., 228 N. La Salle St., Zone 1, plans by Perkins & Will, 309 W. Jackson St., Zone 6, Carroll Elementary School. **$350,000**.

▲ **Ill., Chicago**—SCHOOL—Bd. Educ., 228 N. La Salle St., plans by Pace Associates, 53 W. Jackson St. Zone 4, Farren Elementary School **$1,000,000**. CD 12/1/55.

▲ **Ill., East St. Louis**—HOUSING—East St. Louis Housing Auth., Stephen M. Harris, exec. dir., 1328 N. 44 St., plans by Joseph D. Standish & Joseph Goldenberg, 1101 Spivey Blvd., archts.-engrs. 500-unit public housing in area bounded by 13 and 16 Sts., Broadway and Missouri Ave. **$7,800,000**. New size and cost of project. CD 4/6.

Ind., Bloomington—MUSIC—Bd. Trustees Indiana University, Bloomington, plans by Eggers & Higgins, 110 E. 42 St., New York 17, N. Y., 5 story, 106,000 sq. ft. Music Bldg.

Ind., Indianapolis—PARKING GARAGE—Indianapolis Off Street Parking Comn., City Hall, Zone 4, will not construct 5-level parking garage. **$670,000**. Project cancelled. Betz & Bankemper, Scott Blvd., Covington, Ky., archts. CD 6/11.

▲ **Ind., Indianapolis**—JUVENILE CENTER—Comrs. Marion Co., Court House, plans by Everett I. Brown, Circle Tower, constr. Juvenile Conter, 2510 N. Keystone St. **$1,000,000**. Construction early in 1957.

Iowa, Fenton—SCHOOL—Bd. Educ., Central Community School Dist., K. M. Chase, supt. Schools, Fenton, **$425,000** bonds election Sept. 8, community high school. Haarstick, Lundgren & Assocs., N. 212 First Natl. Bank Bldg., St. Paul, Minn., archts. CD 6/14.

▲ **Iowa, Oskaloosa**—SCHOOLS—Bd Educ., Oskaloosa, plans by Savage & Ver Ploeg, and George Russell, Oskaloosa, high school, elementary school on Webster School site and Jefferson and Grant Elementary School addns. **$1,050,000**. CD 5/25.

▲ **Ind., Woodburn**—SCHOOL, etc.—Jefferson-Maumee-Milan Twp. School Dist., Bd. Educ., Woodbury, plans by LeRoy Bradley, 1115 S. Clinton St., Ft. Wayne, high school, gymnasium, shops, etc. **$1,000,000**.

▲ **Mass., Holden**—SCHOOL—Wachusett Regional School, William Buker, sup. Schools, plans by L. W. Briggs Assoc., Inc., 90 Park Ave., Worcester, Wachusetts Regional School addn. **$1,000,000**. To go ahead in 1957.

Mass., Natick—SCHOOLS—Town, A. D. Woodbury, supt., plans by Smith & Sellew, 283 Dartmouth St., Boston, Lincoln School, Lincoln St.; Lilja School, Oak St., **$500,000**. CD 2/14.

▲ **Mich., Milford**—SCHOOLS—Bd. Educ., Huron Valley Schools, Harold Hansen, supt. Schools, plans by Louis C. Kingscott & Assoc., 511 Monroe St., Kalamazoo, 2 elementary schools, addition to the Brooks School, **$1,200,000**.

Mich., Paw Paw—MEDICAL CENTER, etc.—Bd. Supervs. Van Buren Co. Bd., Lyle Parker, plans by Trend Assoc., Inc., Kalamazoo, medical center and infirmary, **$350,000**.

Mich., Springport—SCHOOL—Village Bd. Educ., high school, **$350,000**.

Mich., Vicksburg—SCHOOL—Bd. Educ., Vicksburg Community School Dist., L. W. Green, secy., plans by Trend Assoc., Inc., Kalamazoo, elementary school, West Vicksburg, **$425,000**.

Minn., Alden—SCHOOL—Bd. Educ., W. B. Hawker, clk., $750,000 bond election Aug. 16, school addns., **$700,000**. CD 11/18/55.

Minn., Bellingham—SCHOOL—Bd. Educ., H. S. May, clk., voted **$350,000** bonds June 29, school addn. Haarstick, Lundgren, & Assoc., N. 212 First National Bank Bldg., St. Paul, archts. CD 11/29/54.

Minn., Brainerd—OFFICE; SHOP—State Hy. Dpt., 1246 University Ave., St. Paul, plans by Stegner-Hendrickson, expansion of existing facilities, 49x65 ft. office; 81x161 ft. truck storage bldg.; 42x161 ft. truck storage bldg.; 53x65 ft. sign and paint shop; 41x60 ft. shop addn., for Construct Dist. 3 and Maintenance Dist. 4. **$390,000**. Bids this year or next.

Minn., Elk River—SCHOOLS—Bd. Educ., Alice Shaduck, clk., voted **$525,000** bonds July 17, elementary school and a smaller school, **$400,000**. Swanson, Matson & Wegleitner, 500 Sexton Bldg., Minneapolis, archts.

Minn., Minneapolis—DORMITORY—Regents of the University of Minnesota, 404 Admin. Bldg., plans by C. H. Johnson, 715 Empire Bank Bldg., St. Paul, addn. to Comstock Hall, women's dormitory, on Main Campus. **$900,000-$1,000,000**. Bids within two months. CD 12/23.

▲ **Mo., Jefferson Barracks (St. Louis 23 P. O.)**—HOUSING—St. Louis County Housing Auth., Robert J. Tracy, exec.-secy., 1316 Sherman Dr., Jefferson Barracks, Lemay, Zone 23, plans by Lee A. Daly Co., 411 N. 7 St., St. Louis, Zone 1, 350 housing units, on 37 acre tract, **$4,755,000**. CD 5/9.

N. J., Freehold—COUNTY JAIL, etc.—Bd. Freeholders Monmouth Co., Court House, plans by James W. Mancuso, 9 Memorial Parkway, Long Branch, county jail and Hall of Records bldg. reconstr. **$437,000**.

N. J., Glen Rock—SCHOOL—Bd. Educ., Borough of Glen Rock, plans by Epple & Seaman, 901 Broad St., Newark, 2 story elementary school. **$600,000**. Bids in February.

N. J., Oceanport—SCHOOL—Bd. Educ., Borough of Oceanport, plans by Alfonso Alvarez, 243 Lorraine Ave., Upper Montclair, elementary school addn. **$350,000**.

▲ **N. J., Passaic**—SCHOOL—City plans by Sherwood, Mills & Smith, 65 Broad St., Stamford, Conn., cafeteria and two gymnasiums in an addition to high school bldg. **$1,350,000**.

▲ **N. J., South Orange**—SCHOOL, etc.—Bd. Educ., South Orange, plans by Micklewright & Mountford, E. Stuyvesant Ave., Trenton, Columbia High School alterations and expansion, **$1,585,000**.

▲ **N. J., Trenton**—HOSPITAL—N. J. Div. Purchase & Property, State House, plans by Kelly & Gruzen, 60 Park Ave., Newark, rehabilitation and addns., incl. parking arae, State Mental Hospital. **$2,000,000**. CD 2/20/53.

N. J., Wyckoff—SCHOOL—Bd. Educ. Borough of Wyckoff, plans by Lee & Hewitt, 18 Church St., Paterson, George Washington School addn. **$670,000**.

N. M., Albuquerque—SCHOOL—Bd. Educ. plans by Wm. W. Ellison, 324 Yale Blvd., S. E., elementary school addn. **$375,000**. CD 3/26.

▲† **N. Y., Model City**—PLANT—Olin Mathieson Chemical Corp., 460 Park Ave., New York, Zone 22, plant for mfg. high energy chemical fuel for missile and aircraft engines at Lake Ontario Ordnance Works for Dpt. of Air Force, The Pentagon, Wash. 25, D. C. **$36,000,000**.

O., Amherst—SCHOOL—Bd. Educ., bond election Nov. 6, 1 and 2 story secondary school, **$901,600**. Fulton, Krinsky & Dela Motte, 6014 Euclid Ave., Cleveland, Zone 3, archts. CD 2/1.

O., Cincinnati—SCHOOL—Bd. Educ., 608 McMillan St., plans by Edw. J. Schulte, 920 E. McMillan St., Fairview Elementary School addns., Warner and Stratford Aves. **$400,000**. Bodenstein & Schuster, 9 and Main Sts., consult. engrs. Bids in late fall. CD 2/28/55.

O., Cleveland Heights—CITY HALL—City, City Hall, 2953 Mayfield Rd., Cleveland, Zone 18, municipal bond election Nov. 6, city hall, **$800,000**. CD 4/6.

▲ **O., Conneaut**—SCHOOL—Bd. Educ., J. H. Wanamaker, supt., bond election Nov. 6, grade school, addn. to Junior High School. **$1,100,000**. CD 11/11.

O., Franklin—SCHOOL—Bd. Educ., bond election Nov. 6. school. **$390,000**. CD 11/8/54.

O., Marion—SCHOOL—Bd. Educ., Ridgedale School Dist., R. 4, bond election Nov. 6, high school. **$695,000**. CD 1/30/52.

▲ **O., Middletown**—SCHOOL—Bd. Educ., bond election Nov. 6, school expansion, **$6,500,000**. CD 10/5/53.

O., Newark—SCHOOL—Bd. Educ., Licking Valley Local School Dist., voted bonds July 10, high school for Hanover, Madison and Perry Townships. **$406,600**. CD 5/12/54.

▲ **O., Parma**—PARK IMPROVEMENTS—City, Fred Newcomb, Service Director, City Hall, 6611 Ridge Rd., Cleveland, **$1,000,000** bond election Nov. 6, park imprvs., incl. swimming pools, other facilities.

▲ **O., Washington Court House**—SCHOOLS—Bd. Educ. **$2,100,000** bond election Nov. 6, four grade school and two schools. CD 3/1/54.

▲ **O., Willoughby**—HOSPITAL—Comrs. Lake Co., Court House, Painesville, **$3,500,000** bond election Nov. 6, 5 story hospital serving west end of Lake Co. CD 7/19.

Okla., Miami—AUDITORIUM, etc.—Bd. Educ. plans by Noftsger & Lawrence, 2756 N.W. 23 St., Oklahoma City, auditorium and gymnasium. **$500,000**.

Okla., Sulphur—HOSPITAL—Murray Co., Sulphur, Murray County Hospital. **$500,000**. Richard Norton, c/o owner, engr.

Okla., Vinita—SCHOOL—Bd. Educ., high school **$400,000**. W. M. Hellen, c/o owner, engr.

Pa., McKeesport—PARKING GARAGE—McKeesport Parking Auth., 508 Locust St., plans by Celli-Flynn, 335 Shaw Ave., 5 story, 113x306 ft., rein.-conc., steel frame parking garage, Lysle Blvd. and Locust St., **$700,000**.

Tex., Baytown—SCHOOL—Goose Creek Independent School Dist., c/o Geo. H. Gentry, plans by Daniel Perkins, 225 Kanzalis Bldg., addition to Lee College. **$350,000**.

Tex., Channelview—HIGH SCHOOL—Channelview Independent School Dist., voted bonds July 14, Senior High School, **$635,000**. CD 2/19/54.

Tex., Corsicana—SCHOOL—Corsicana Independent School Dist., c/o Ted Metcalfe, Corsicana, Junior High School, **$500,000**; miscellaneous school bldg. improvements, **$350,000**.

Tex., Crosby—SCHOOL—Crosby Independent School Dist., masonry Drew High School, **$350,000**. Matt E. Howard, Jr. & Assoc.; 2444 Times Blvd., Houston, consult. engrs. CD 5/26/55.

▲ **Tex., Harlingen**—SCHOOL—Harlingen Independent School Dist. Plans by Smyth & Smyth, 1806 S. Alameda, Corpus Christi, high school. **$1,500,000**. CD 12/2.

Tex., Kingsville—HOUSING—City of Kingsville Housing Auth., 40 low rental housing units. **$374,364**.

Tex., McKinney—HOUSING—City of McKinney Housing Auth., 30 low rental housing units, **$344,106**.

▲ **Tex., Nederland**—SCHOOLS—Nederland Independent School Dist., voted bonds July 14, Junior High School, **$575,000**; group of classrooms, **$350,000**; elementary school, **$374,000**. CD 11/10/54.

▲ **Tex., San Antonio**—SCHOOLS—Northeast Independent School Dist., C. L. Camp., Lockhill-Selma Rd., plans by Herbert Kellner, 406 Austin, and Fred

(Continued on page 111)

"Nothing like them for hauling 26-ton loads through busy Miami streets!"

—says Kent Kelley of Kimco Concrete, Inc., Miami, Florida, about his new GMC Hydra-Matic tandems*

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HAULING 52,900 LBS. GROSS AT A CLIP, these GMC MW554's haul more mix per load within legal limits. That's due to the new weight-saving chassis design that eliminates every ounce of excess truck weight—yet makes these GMC's the ruggedest ever built. "You can't hurt those trucks," says Kelley.

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"I GET MORE OF WHAT I WANT IN GMC's — no matter how you compare them with competition," Kelley claims. "There's more power from that 210 h.p. V8 — better load capacity—easier driving—and all with much lower operating costs. I predict that most every truck in the country will be a Hydra-Matic within the next five years."

**Hydra-Matic standard on some models; optional at extra cost on others*

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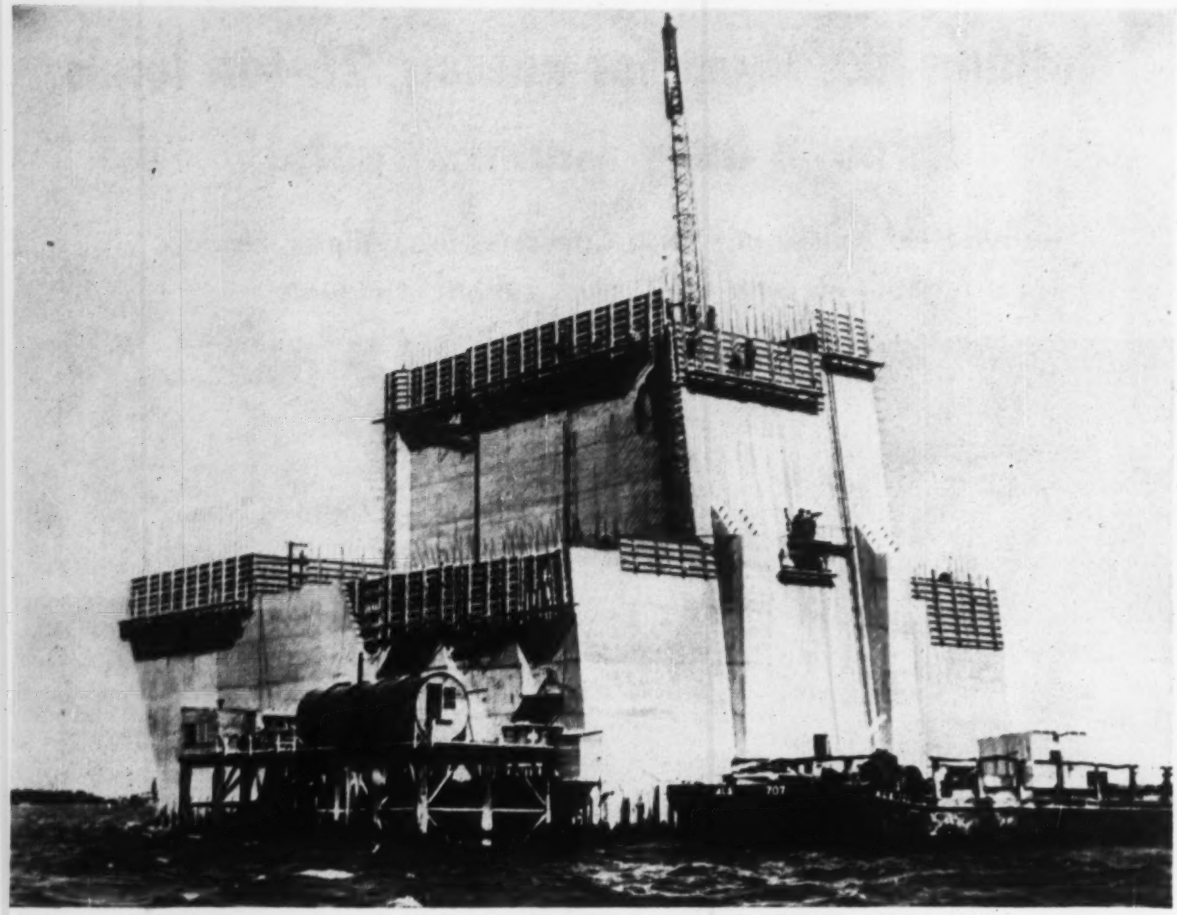

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(Continued from page 108)

Buenz, 4900 Broadway, Junior and Senior High Schools in Green Meadow Estates. $1,200,000.

Tex., San Benito—HOUSING—City of Benito Housing Auth., 30 low rental housing units, **$343,850.**

Wash., Kennewick—LIBRARY—Mid-Columbia Library Bd., library, **$350,000.** Work starts 1958.

▲ **Wash., Moses Lake**—SCHOOLS—School Dist. 161, Moses Lake, election Sept. 11 on special levy to help finance high school, **$1,000,000;** Junior High School, **$500,000;** four grade schools, **$400,000** each. CD 1/18.

▲ **Wash., Mount Vernon**—HOSPITAL—Hospital District No. 1, Mount Vernon, $120,000 bond election Sept. 11, 78-bed hospital, **$1,110,000.** J. W. Maloney & Assocs, Central Bldg., Seattle, Zone 4, archts. CD 9/28.

▲ **Wis., Sheboygan**—SCHOOL—Bd. Educ., Sheboygan, constr. Senior High School. **$3,000,000.**

▲ **Ont., London**—GEOLOGY, etc.—University of Western Ontario, Bd. Governors, Dr. E. G. Hall, pres., London, plans by O. Roy Moore & Co., 260 Dundas St., 3 story, bsmnt., L-shaped stone, steel geology and biology bldg. **$1,400,000.** M. M. Dillon Co., 141 Maple St., consult. engr. for steel plans.

Ont., Windsor—COLLEGIATE—Bd. Educ., 451 Park St. W., 2 story, W. F. Herman Collègiate, 11-acre site, near Bernard Rd. and Malloy Ave. **$600,000.** Giffels & Vallet of Canada, Ltd., 65 Elliott St. E., consult. engrs.

Que., Thetford Mines—BUILDINGS—Cite de Thetford Mines, constr. of buildings intended for industrial use. **$200,000.**

COMMERCIAL BUILDINGS

▲ **Calif., Galeta**—DWELLINGS—Sorensen & Beckman, Inc., 5739 Hollister Ave., plans by Jones & Emmons, 12248 Santa Monica Blvd., Los Angeles, 118 frame, stucco dwellings, in Kellog Park, **$1,200,000.**

▲ **Calif., Los Angeles**—HOSPITAL—Orthopedic Hospital, 24 and Flowe Sts., plans by Albert C. Martin & Assocs., 333 S. Beaudry St., 6 story, 110,000 sq. ft. rein.-con. hospital addn. **$3,780,000.**

▲ **Calif., Sacramento**—MEDICAL—Episcopal Diocise of Sacramento, 2665 10 St., 70,000 sq. ft. concrete block and steel reinf. medical bldg., **$1,000,000.**

▲ **Calif., Sacramento**—MEDICAL CENTER—St. Luke's Medical Center, 26 St. and Capitol Ave., 4 story, bsmnt., 70,000 sq. ft. medical center **$1,000,000.** Bids in about one month.

Calif., San Francisco—HOSPITAL—Children's Hospital, 3700 California St., plans by Stone, Mulloy, Marraccine & Patterson, 619 California St., children's hospital addn. **$350,000.**

▲ **Calif., San Francisco**—HEADQUARTERS OFFICE—Crown Zellerbach Corp., 343 Sansome St., San Francisco, plant by Hertzka & Knowles, 85 Post St., 22-story, steel, rein.-con. headquarters office, 200-car garage, 7 elevators, etc., Market and Battery Sts. **$10,000,000.** H. J. Brunier, Sharon Bldg., San Francisco, structural engr. Bid in September. CD 5/20/55.

▲ **Calif., San Pablo**—SHOPPING CENTER—D. A. Sargent & Co., 1212 Broadway, Oakland, shopping center, incl. 1 dept. store, various small shops and professional bldg., adjacent to West Contra Costa Junior College campus, **$6,000,000.**

Conn., Cheshire—CHURCH—St. Bridget's R.C. Church, Highland Ave., new church bldg. **$345,000.**

▲ **Conn., Essex**—CLUBHOUSE, etc.—Middle Cove Club, Essex, plans by Pedersen & Tilney, 111 Whitney Ave., New Haven, clubhouse, cabanas, swimming pool **$1,000,000.** Bids in Fall.

▲ **Conn., Hartford**—OFFICE—The Asylum Corp., 1049 Asylum Ave., plans by Pederson & Tilney, 111 Whitney Ave., New Haven, 75,000 sq. ft. office bldg., 1049 Asylum Ave., **$1,600,000.** Work in 1957. International Business Machines Corp., 100 Farmington Ave., consult. engrs.

▲ **Conn., Manchester**—HOUSE DEVELOPMENT—Jarvis Realty Co., 654 Center St., 120 house development, Woodland St., Woodhill Heights. **$2,064,000.**

Conn., Milford—HOSPITAL—Milford Hospital Society, Building Commission, Fred H. Merwin, 31 Robert Treat Parkway, plans by Jesse James Hamblin, 1188 Main St., Bridgeport, 3 story, 40x100 Ft. hospital addn., **$360,000.** CD 10/31/51.

▲ **Conn., New Haven**—ELECTRICAL ENGINEERING LABORATORY—Yale University, 105 Wall St., plans by Carl R. Blanchard, 111 Whitney Ave., electrical engineering laboratory. **$1,000,000.** CD 9/27.

▲ **Conn., Stamford**—APARTMENTS—Post Realty Corp., c/o Philip Birmabaum, archt., 12 East 48 St., New York, N. Y., apartment, 39 Glenrock Rd. **$1,000,000.** Bids asked fall.

Conn., Stamford—HOSPITAL—Stamford Hospital, 190 W. Broad St., plans by Sherwood Mills & Smith, 65 Broad St., 4 story hospital addn. **$500,000.**

Conn., Stratford—SCHOOL—Holy Name of Jesus R.C. Church, 1950 Barnum Ave., plans by Bannon & Antinozzi, 2503 Main St., 2 story, brick elementary school, auditorium and gymnasium, Mary Ave. **$350,000.**

▲ **Conn., Vernon**—HOUSE DEVELOPMENT—Box Mountain Homes, Tunnel Rd., 150 house development, Tunnel Rd., **$2,175,000.**

Conn., Wallingford—MOTEL, etc.—Wilbur Cross Motel, Inc., No. Ridgeland Rd., 1 story restaurant 100 capacity, 1 and 2 story 60 unit motel. **$400,000.**

(Continued on page 114)

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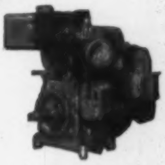
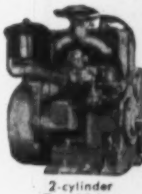


4-cycle single cyl., 3 to 9 hp.



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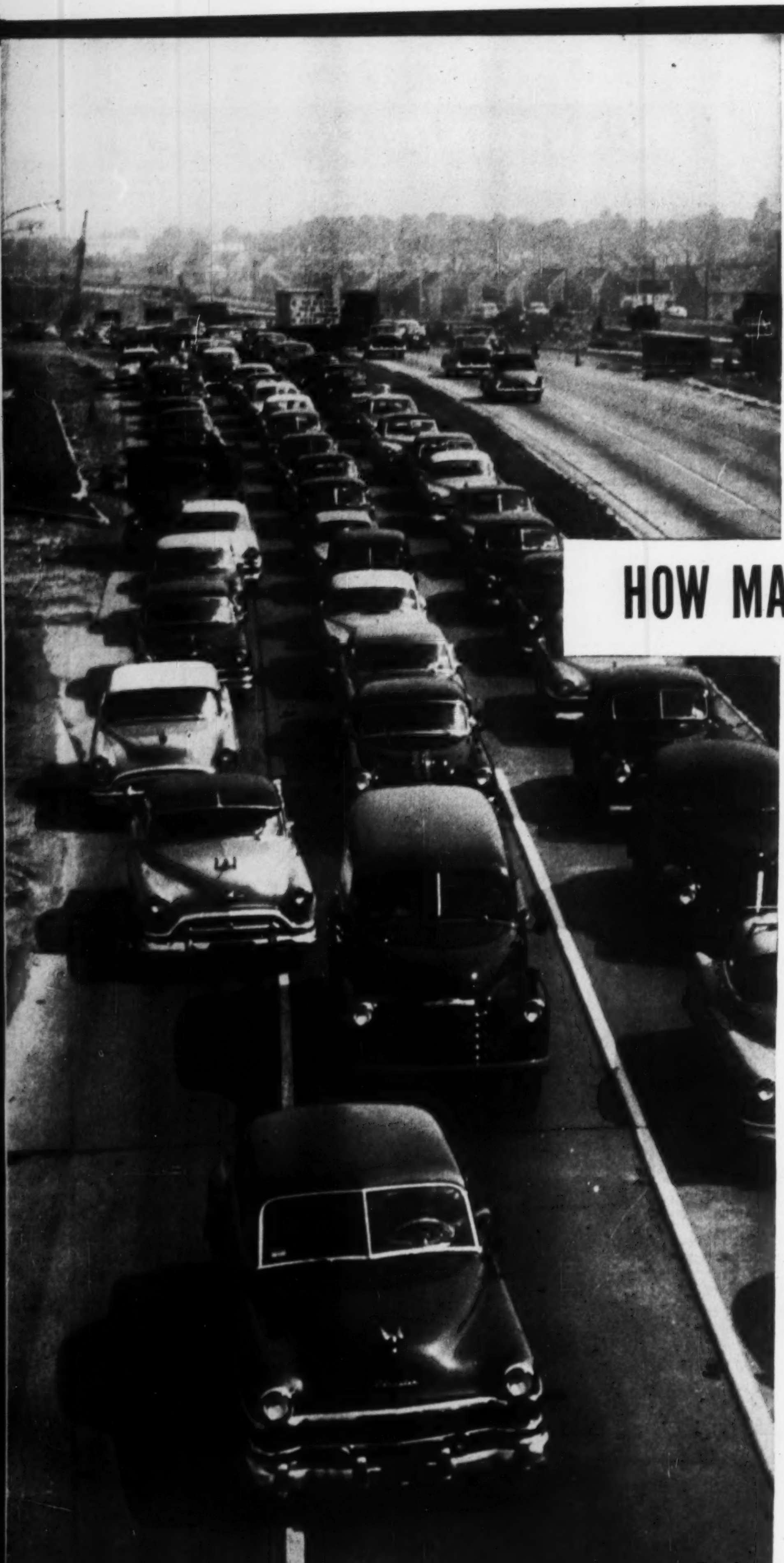
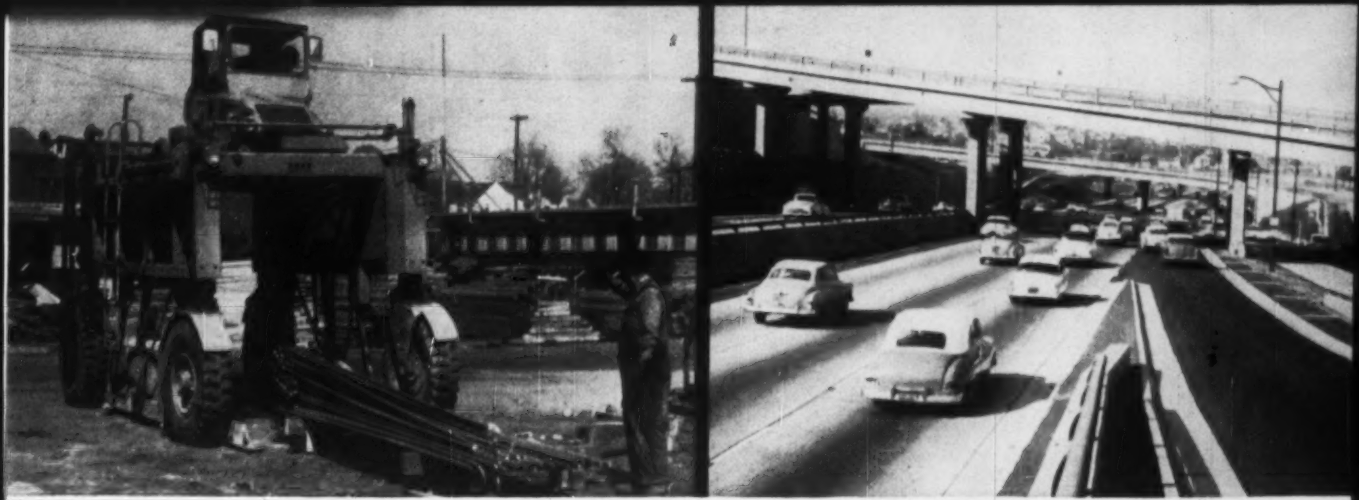


HOW MANY MILES OF

HIGHWAYS ARE EVERYBODY'S BUSINESS — ESPECIALLY YOURS

Everybody talks about highway problems, but you can do something about it. Remember, now that the money has been provided, only you and your fellow construction men can convert the dollars into highways. Be sure you're ready to do the job.



You keep informed of new machines, materials and methods all year long in McGraw-Hill's construction publications. The 1957 Road Show is another opportunity to keep yourself well-informed about the best ways to break America's highway bottlenecks.

HIGHWAY ARE YOU READY TO BUILD?

The 1957 Road Show will help you build more than you can now

WITH A MAJOR HIGHWAY PROGRAM at last under way, how many contracts will you get? How many miles of highway will you build? The answer depends entirely on how well, how fast and how economically you can build them.

The better and faster you work, the more miles you'll build. And the more economically you do it, the more you and your country will profit. But to do it, you'll need the newest equipment, the best materials, the sharpest engineers. You'll need to rely on every service available—from subcontractors to electronic brains.

The 1957 Road Show in Chicago will help you build more miles of highway than you can now. Under one roof will be shown the latest in tools and equipment, the newest methods, the new materials and the new uses for old materials, and a wide variety of services to help you do your job better, faster, and cheaper. You'll also find several thousand of your fellow roadbuilders, designers and construction experts who will be swapping experiences and ideas.

You can shop around, question the experts, line up new personnel, get an eye on the new machinery, learn new tricks and techniques that will help you get more contracts and make more money out of each contract.

Try to spend the full week there, from January 28 to February 2.

The time and money you spend on the Road Show will pay off over and over again through the coming years. Not only is it smart business for you to attend, but you owe it to your country to provide the best roads, in the fastest most economical way.

GO TO THE ROAD SHOW IN 1957

DATE: **January 28—February 2, 1957**

PLACE: **International Amphitheatre,**
Chicago, Illinois

Tremendous advances have been made in the last decade. New equipment, new methods, new cost-cutting ideas, new materials and new uses for old materials, all have been developed since the last Road Show in 1948. This is the time and the place to bring yourself up to date on all these new developments.

Nothing is being spared to make this the greatest indoor exhibit of machinery and materials ever gathered together. You will also hear outstanding authorities discuss solutions for the problems that are bothering you.

HOTEL SPACE WILL BE TIGHT. Write for data on reservations now. And ask to be put on the list to receive future information on the 1957 Road Show. Write to the American Roadbuilders Association, World Center Building, Washington 6, D. C. Do it now to be sure of your reservations.

This message contributed in the interests of better highways for future progress.

CONSTRUCTION DAILY
ENGINEERING NEWS-RECORD
CONSTRUCTION METHODS AND EQUIPMENT
INGENIERIA INTERNACIONAL CONSTRUCCION

The McGraw-Hill Construction Publications • 330 West 42nd Street, New York 36, New York

(Continued from page 111)

Conn., West Haven—HOUSES—Kaye Builders, Inc., Woodmont Rd., 33 houses, Jessie Dr., 17 houses, Kaye Rd., **$500,000.**

Conn., Weston—CHURCH—First Universalist Church, Bridge St., Saugatuck, church, Lyons Plains Rd. **$345,000.**

▲ **D. C., Wash.**—LIBRARY, etc.—Catholic University of America, 620 Michigan Ave. N. E., plans by Murphy & Locraft, 1518 P St. N. W., library addn. **$720,000**; physics bldg. on campus, **$880,000.** Work to start in fall.

▲ **D. C., Wash.**—OFFICE—1707 H St. Assoc., 1707 H St. N.W., plans by Edwin Weihe, 927 15 St. N.W., 11 story, bsmnt. 50,000 sq. ft. office bldg., 1707 H St. N.W., **$1,000,000.** Bids this fall.

▲ **Ga., Savannah**—OFFICE, etc.—Pulaski, Inc., Bull and Byron Sts., 10 story, steel, rein.-con. office bldg., multi-story parking garage, **$2,000,000.**

Ill., Des Plaines—APARTMENTS—First Des Plaines Center Corp., 72 N. Broadway, plans by A. J. Del Bianco, 5501 W. Irving Park Rd., Chicago, apartment bldg., Willow St. **$350,000.**

▲ **Ill., Evanston**—SHOPPING CENTER—Bulk Petroleum Co., 2958 N. Ashland Ave., Chicago, plans by Sidney C. Finck & Assoc., 343 S. Dearborn St., Chicago, shopping center, Chicago Ave. and Greenleaf St. **$1,000,000.**

▲ **Ind., Indianapolis**—HOUSING—DeCamp Realty Co., Inc., 3019 Georgetown Rd., 750 homes, 273-acre tract, Mud Creek and Hague Rd., northeast of here. **$20,000,000.**

▲ **Ill., Park Ridge**—BANK—Citizens State Bank of Park Ridge, 1 S. northwest Hy., plans by Strickland & McNamara, 6414 N. Western Ave., Chicago, 2 story, brick bank annex. **$1,000,000.** C. A. Bostrom, 4444 W. Lawrence Ave., Chicago, consult. engr. CD 5/31.

Ind., Indianapolis—SHOPPING CENTER—Harry Adler & Assocs., 115 W. 44 St., shopping center, 6-acre site, on Michigan Rd. between 62 and 63 Sts., **$400,000.**

▲ **Mass., Boston**—OFFICE—Fargo Development Co., Inc., 14 Fargo St., plans by B. C. Gallo, 409 Chelsea St., East Boston, 225x256x170 ft., office and market terminal, Summer and Fargo Sts. **$1,000,000.** To go ahead in 1957.

▲ **Mass., Boston**—OFFICE—Benjamin Ginsberg, 60 State St., plans by B. C. Gallo, 409 Chelsea St., East Boston, 3 story, 155x82x70 ft. steel, aluminum office, Congress, Franklin and Federal Sts., **$1,000,000.** To go ahead in 1957.

Mass., Wilbraham—HOSPITAL—Ludlow Hospital, Bd. Trustees, Albert Fuller, pres., Ludlow, plans by James H. Ritchie & Assoc., 135 Clarendon St., Boston, hospital, **$750,000.** CD 6/20/56, under Mass., Ludlow.

Mass., Woburn—ENGINEERING CENTER—Northeastern University, 360 Huntington Ave., Boston, engineering center, Rte. 128. **$350,000.**

Mich., Detroit—CHURCH, etc.—Trumbull Ave. Presbyterian Church, 1435 Brainard, plans by Earl L. Confer, 14000 Strathmoor, church and educational bldg. **$350,000.**

Mich., Detroit—SOCIETY HEADQUARTERS—Wayne Co. Medical Society, 4421 Woodward Ave., plans by Earl L. Confer, 14000 Strathmoor, society headquarters bldg., Wayne University Campus. **$500,000.** CD 4/16.

Mich., Flint—CHURCH, etc.—St. Paul Lutheran Church Parish plans by Earl D. Confer, 14000 Strathmoor, Detroit, church, incl. school, gymnasium and auditorium, **$500,000.**

Mich., Hazel Park—HOSPITAL—Dr. Albert Litsky, 1183 East Grand Blvd., Detroit 11, hospital, Woodward Heights and Hughes, **$500,000.**

▲ **Minn., Columbia Heights**—SHOPPING CENTER—Lakeland Development Co., 2406 N. E. Buchanan St., Minneapolis, will not construct shopping center between 43 and 44 Ave. N. E. west of Central Ave., **$1,125,000.** Project abandoned. CD 10/20.

▲ **Mo., Grandview**—HOMES—Leamill Development Co., c/o Leacox & Scott Tire Co., Robert Leacox, 2518 Grand Ave., Kansas City, Mo., 500 home development around Spring Valley Golf & Country Club, on 450 acre site between State Line and Wornall Rd. from 125 to 130 Sts., southern part of Jackson Co., **$12,000,000.**

▲ **Mo., Kansas City**—OFFICE, etc.—Downtown Redevelopment Corp., c/o Commerce Trust Co., James Kemper, pres., 922 Walnut St., Kansas City, Mo., plans by Keene, Simpson & Murphy, 15 W. 10 St., Kansas City, Mo., office and motor car parking, **$4,500,000.** To go ahead in six months.

▲ **Mo., St. Louis**—MOTEL, etc.—Euclid Investment Co., B. H. Tureen, genl. mgr., DeSoto Hotel, 11 and Pine Sts., 3 story, bsmnt., brick, rein.-con. motel-hotel, including swimming pool and underground parking garage, 4900 Lindell Blvd. **$1,500,000.** Work to start in about 6 months.

Mo., St. Louis—OFFICE—Life Insurance Co. of Missouri, C. R. Gulley, exec. vice pres., 705 Chestnut St., plans by Wedemeyer & Hacker, 111 N. 4 St., 5 story, bsmnt. 60,000 sq. ft. floor space, office bldg., on 213x220 ft. site, Lindell Blvd. and Spring Ave. **$750,000.** Bids in 90 to 120 days.

N. J., Caldwell—SHOPPING CENTER—Sanford Z. Sturm, 60 Park Pl., Newark, plans by James W. Mancuso, 9 Memorial Parkway, Long Branch, shopping center. **$500,000.** Bids in October.

N. Y., New York—APARTMENT—Carol Management Corp., 12 E. 48 St., plans by Philip Birnbaum, 18 E. 48 St., New York, 18 story, penthouse, apartment on 75x100 ft. plot.

O., Carthagena—SEMINARY—Father Seraphin W. Oberhauser, head of American Province of Society of the Precious Blood, extension to St. Charles Seminary. **$500,000.**

▲ **O., Cincinnati**—SHOPPING CENTER—Conrad Syeferth, 1458 Anderson Ferry Rd., 15 store, 150,000 sq. ft. shopping center, community bldg., Anderson Ferry Rd. and Delhi Park, **$1,500,000.**

O., Minster—SEMINARY—St. Charles Seminary, 2 story cement block with buff brick facing seminary addn. **$500,000.**

▲ **O., North Eaton**—HOMES—R. A. Gall Realty Co., 4815 Pearl Rd., Cleveland, Zone 9, will not construct 300 pre-fab. homes, **$4,000,000.** Project abandoned. CD 1/27.

▲ **O., Tiffin**—HOMES, etc.—Heights Homes Co. of Cleveland, c/o Howard E. Hendershott, Jr., 1543 Westdale St., Cleveland, 100 or more homes and store center, on 89 acre site at western edge of Tiffin, **$1,000,000.**

▲ **Pa., Norristown**—SHOPPING CENTER—Food Fair Properties, Inc., 99 Park Ave., New York, N. Y., plans by Lathrop Douglass, 518 Fifth Ave., New York, N. Y., 200,000 sq. ft., brick, masonry, steel shopping center, 22,500 sq. ft. supermarket, 40 units, parking area, **$2,000,000.**

▲ **Pa., Pittsburgh**—APARTMENT—Town Development, Inc., Carlton House, plans by Paul Kossman, c/o owner, 8 story, masonry, stone, steel Schenley Towers Apartment, Bigelow Blvd. **$5,000,000.**

S. D., Sioux Falls—STUDENT HOUSING—Augustana College, 29 and S. Summit, student housing, **$500,000.**

▲ **Tex., Dallas**—DWELLINGS—T. K. Irwin and Ralph B. Leonard & Assoc., c/o Mercantile Commerce Bldg., 22 dwellings, **$351,610**; 31 dwellings, **$368,400**; 36 dwellings, **$393,331**; 33 dwellings, **$389,000**; 28 dwellings, **$359,000**; 18 dwellings, **$347,500**; in 800-acre Redbird Village Subdivision, near Duncanville.

▲ **Tex., Dallas**—SHOPPING CENTER—T. K. Irwin & Ralph B. Leonard & Assoc., Mercantile Commerce Bldg., plans by Geo. L. Dahl, 2101 N St. Paul, shopping center, Red Bird Shopping Village, near Duncanville, **$8,000,000.**

Tex., Edinburg—MOTEL—Edinburg Community Hotel Corp., c/o Everett Braden, chn., hotel, **$475,000.**

Tex., Ft. Worth—OFFICE—Lone Star Gas Co., c/o A. P. Rowland, mgr., 908 Monroe, plans by Wyatt C. Hedrick Co., 1200 T&P Bldg., 3 story, brick, tile, concrete, steel office bldg. addn. **$400,000.**

Tex., Houston—DWELLINGS—Searcy Babbitt, 11516 Art St., 16 dwellings, in Pamela Hgts. where 400 dwellings planned. **$363,185.**

▲ **Tex., Houston**—DWELLINGS—John Baldwin, c/o Braeburn Glen, 3218 Roland St., 18 brick dwellings, **$367,775**; 30 dwellings, **$381,145**; 14 dwellings, **$350,500**; 28 dwellings, **$364,000**; 27 frame dwellings, **$377,000**, in Braeburn Glen 900-Home Subdivision.

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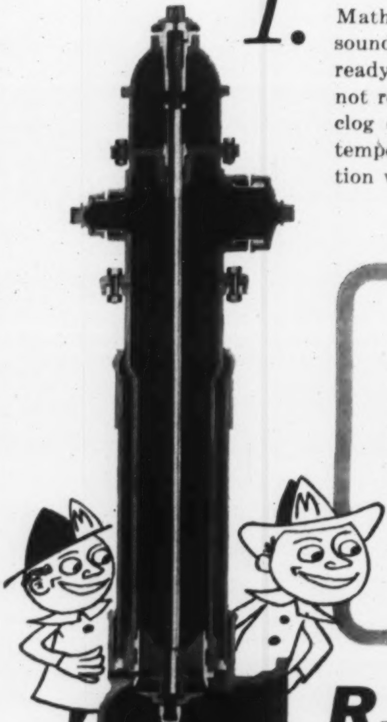
You need ask two questions



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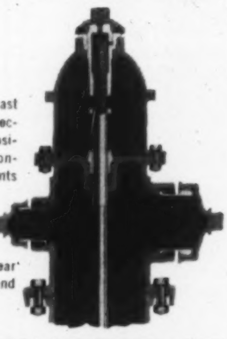
Will they be ready for instant use in an emergency?

Mathews Hydrants are so simply and soundly constructed that they are always ready. Water, ice and sandy deposits cannot reach key parts to rust or freeze, or clog operation. In any weather and all temperatures, Mathews Hydrants function with a minimum of maintenance.



Stuffing box plate, cast integral with nozzle section, provides a positively leakproof construction. It prevents any water or sand from reaching the operating thread. No rusting, freezing or clogging. No wear on thread through sand abrasion.

R. D. WOOD

Public Ledger Building, Independence Square
Philadelphia 5, Pa.

▲ **Tex., Houston**—DWELLINGS—Arthur Coburn, trustee, c/o Ayrshire Corp., 6825 Academy, 29 dwellings, **$376,550**; 21 dwellings, **$353,300**; 26 dwellings, **$364,000**; 31 dwellings, **$382,225**.

Tex., Houston—DWELLINGS—Earl Gilbert, 5601 Airline, plans by A. Carroll Broadnax, 1828 Arbor, 12 masonry dwellings, **$351,500**, in area Pamela Hgts. where 400 dwellings planned.

▲ **Tex., Houston**—DWELLINGS—Robert F. Harris, 2114 W. Holcombe, 27 dwellings, **$366,190**; 22 dwellings, **$352,500**; 25 dwellings, **$377,100**; 18 dwellings, **$349,610**, off Old Galveston Rd.

Tex., Houston—DWELLINGS—Alvan Huvard, 10915 Willowisp St., plans by Wm. R. Jenkins, 4901 Jessamine, 20 dwellings, **$368,425**, in area Pamela Hgts. where 400 dwellings planned.

Tex., Houston—DWELLINGS—John Lorino, c/o 5601 Airline, plans by Joe Hyaams, 807 Nadine St., 27 dwellings, **$350,000**, in Pamela Hgts., where 400 dwellings planned.

▲ **Tex., Houston**—DWELLINGS—Prokop Building Co., Inc., 6903 Long Point, 12 cedar shake, brick trim bldgs., **$361,000**; 24 cedar shake dwellings, **$377,190**; 18 brick dwellings, **$371,115**; 15 cedar shake, brick trim dwellings, **$375,000**, in a section of Windsor Village.

▲ **Tex., Laredo**—SCHOOLS—Laredo Independent School Dist., group of 56 elementary school classrooms, **$375,000**; group of 43 secondary elementary school classrooms, **$350,000**; 21-room new elementary school, **$365,000**; classroom additions to upper grade schools, **$410,000**.

▲ **Tex., Nederland**—DWELLINGS—H. P. Youmans & Assoc., Stage No. 1 30 dwellings, **$365,000**; 33 dwellings, **$373,135**; 28 dwellings, **$351,000**; 800-Residential area Sub-division, 205-acre tract.

Tex., San Antonio—HOT LABORATORY—Southwest Research Institute, c/o Dr. H. Vagtborg, 8500 Culebra, "hot laboratory" for Pratt & Whitney Co. useage, **$600,000**.

▲ **Tex., Wichita Falls**—DWELLINGS—Hughes Development Co., Pampa, 34 dwellings, **$368,125**; 32 dwellings, **$356,120**; 30 dwellings, **$349,000** in Faith Village.

▲ **Wash., Tacoma**—HOMES, etc.—North Shore Properties, Inc., c/o J. Felix, Northern Life Tower, Seattle, Zone 1, 903 homes, business and shopping center, golf course, clubhouse and swimming pool in area between Browns Point and Northeast Tacoma, **$16,000,000**. Work on golf course to start in September.

▲ **Ont., Galt**—RESIDENTIAL, etc.—John A. Bailey Development Ltd., 727 Bayview Ave., Toronto, plans by Servos & Cauley, 102 Eglinton Ave. E, Toronto, residential and commercial development. **$3,000,000**.

Ont., Toronto—APARTMENT—Avenue Park Investments, c/o Harry B. Kohl, archt., 1407 Yonge St., 10 story, bsmnt., masonry, steel 124-suite apartment, Avenue Rd., east side, south of Webster Ave. **$992,000**. Wallace, Carruthers & Assocs. Ltd., 92 Yorkville Ave., consult. engrs.

▲ **Ont., Toronto**—COMMERCIAL, etc.—Colmur Constr. Co. Ltd., 62 Skylark St., commercial and residential development, Elgin Mills Rd. east of Bathurst St. **$7,000,000**.

Ont., Toronto—APARTMENTS—c/o Owner, Paul Meschimo, archt., 4831 Yonge St., 318 suite Rexleigh Park Apartments, East York. **$350,000**.

▲ **Que., Montreal**—RESIDENTIAL DEVELOPMENT—S. D. Gameroff, 1069 Notre Dame St., Lachine, plans by Ben-Ami Shulman, 5174 Cote des Neiges Rd., residential development between 25 and 39 Aves, Lachine. **$9,000,000**. CD 5/10.

INDUSTRIAL BUILDINGS

Calif., Alameda—WAREHOUSE—Alaska Packers, foot of "J" St., 150,000 sq. ft. L-shaped warehouse. **$500,000**.

Calif., Riverside—WAREHOUSE—Soden Wholesale Electric Co., c/o Herman O. Runhau, archt., Mission Inn, 25,000 sq. ft. tilt-up concrete warehouse. **$200,000**.

▲ **Calif., Sacramento** — CANNERY — Libby, McNeill & Libby, Alhambra and Stockton Blvds., two cannery bldgs. **$2,000,000**.

▲ **Calif., San Francisco** — WAREHOUSE — Eastman Kodak Co., 241 Battery St., plans by Kitchen & Hunt, 525 Market St., 2 story and partial 3 story, approx. 130,000 sq. ft. steel frame constr. warehouse, **$2,225,000**.

Conn., East Hartford—GARAGE, etc.—Arrow Bus Lines, 33 Lester St., plans by Berenson & West, 48 Forest St., Hartford, 1 story, 120x220 ft. masonry, steel garage and storage bldg. Florence St. **$264,000**. CD 7/17.

Conn., New Haven—WAREHOUSE, etc.—New Haven News Agency Co., 113 Hill St., plans by Chas H. Abramowitz, 52 Goffe Terrace, 1 story, 14,000 sq. ft. brick, block, steel warehouse and office, Exchange St., Fair Haven, **$150,000**.

Conn., New Milford — PAPER MILL — Kimberley-Clark Paper Co., 128 No. Commercial St., Neenah, Wis., paper mill. **$325,000**.

Conn., New Milford—TUBE MILL—Scovill Mfg. Co., 99 Mill St., Waterbury, tube mill, Housatonic Ave. **$450,000**.

Conn., Hartford—WAREHOUSE, etc.—L. L. Ensworth & Son. Inc., 344 Front St., plans by Jeter & Cook, 36 Pearl St., 62,000 sq. ft. warehouse, office, Locust St. **$500,000**. Robert W. Loomis, 32 Maple Ave., Windsor, consult. engr. Paul D. Bemis, 36 Pearl St., engr.

▲ **Ga., Brunswick**—GENERATING UNIT—Georgia Power Co., 52 Fairlie St. N.W., Atlanta, 75,000-kilowatt electric generating unit at McManus steam plant. **$13,000,000**. Construction in early 1957.

Iowa, Cresco—PLANT—Farmers Co-operative Creamery plans by W. A. Lockard-Decorah, creamery plant. **$150,000**.

Iowa, Decorah—PLANT—Decorah Development Co., Decorah, plans by W. A. Lockard, plant. **$100,000**.

Ky., Frankfort—PLANT, etc.—Ken-Wel Mfg. Co., 122 Logan St., plans by N. Ronneberg Co., 3906 Harlem St., Chicago, Ill., and Oberwarth & Livingston, assoc. archts., 323 Shelby St., 1 story, 200x250' ft., brick, steel, concrete industrial plant and office. **$500,000**, Staggs & Fisher, 508 E. Main St., Lexington, mech. engrs.

Mass., Pembroke—MANUFACTURING—Ahayer Scale & Engineering Corp., 494 E. Water St., Rockland, plans by A. B. Sziklas, 145 Highland St., Newton, 15,000 sq. ft. manufacturing bldg. Approx. **$112,000**.

Mass., Plymouth—SERVICE—Wildes Motor Co., Inc., 115 Sandwich St., plans by Haldeman & Jacoby, 153 Main St., Brockton, 1 story masonry, steel service bldg., Sandwich St. **$150,000**.

Mich., Grand Rapids—WAREHOUSE, etc.—General Electric Appliances Co., George J. Essenburgh, distr. mgr., 305 Fulton St. W., 80,000 sq. ft. warehouse and sales bldg. **$500,000**.

▲ **Mich., Kalamazoo** — PLANT — Fuller Mfg. Co., Kalamazoo, 112,000 sq. ft. heavy duty transmission plant, **$2,000,000**.

Minn., Golden Valley (P. O. Minneapolis—FACTORY—Atland Mfg. Co., 1312 E. 21 St., 50,000 sq. ft. factory, Golden Valley Rd. between Minneapolis Gas Co. farm and Golden Valley Methodist Church. **$500,000**.

Minn., Mountain Lakes—PLANT—Land O'Lakes Creameries, Inc., L. Getten, mgr., 2215 N.E. Kennedy St., Minneapolis, plans by M & G Buetown, 1931 University Ave., St. Paul, 1 story, 85x120 ft. creamery and milk drying plant, **$400,000**. Constr. in the Fall. CD 6/1.

▲ **N. J., Parsippany**—RESEARCH LABORATORY—Texas-U. S. Chemical Co., 260 Madison Ave., New York, N. Y., scientific research laboratory, Littleton Rd. **$1,125,000**.

O., Cincinnati—GARAGE—Francis Buchanan, 121 E. 3 St., will not construct 250 unit elevator type garage bldg. **$400,000**. Project cancelled. CD 2/18/55.

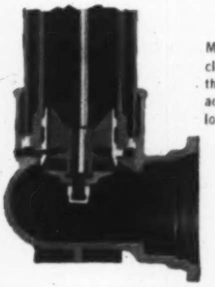
O., Cleveland — PLANT — Forest City Foundries Co., 2500 W. 27 St., 1 story, 30,000 sq. ft., brick, steel addition to W. 94 St. and Maywood Plant, **$200,000**. Christian Schwarzenberg & Gaede Co., 1836 Euclid Ave., consult. engrs.

DEPENDABLE PROTECTION

only
about fire hydrants:

2. **Can the hydrant be quickly replaced if broken in a traffic accident?**

When you have Mathews Hydrants on the job, neighborhood fire protection can suffer only momentary interruption. A broken Mathews Hydrant can be replaced with a new barrel in less than half an hour, and *without excavating*.



Available for mechanical joint connections

Main valve, true compression type, opens against and closes with water pressure. The higher the pressure, the tighter the valve. When hydrant is broken in traffic accident, there's no leakage with consequent dangerous loss of pressure.

COMPANY

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

▲ **O., Garfield Heights**—REPAIR DEPOT—General Electric Co., River Rd., Schenectady, N. Y., heavy machinery repair depot for apparatus division. **$1,000,000.**

O., Marion—FACTORY—Whirlpool-Seeger Corp., Marion, 79,000 sq. ft. storage and factory addn., 240x320 ft. warehouse, northeast corner of present plant on W. Center St. **$800,000.**

Pa., Aliquippa—BOILER HOUSE—Jones & Laughlin Steel Corp., 3 Gateway Center, Pittsburgh, boiler house alterations. **$500,000.** Kuljian Corp., 1200 N. Broad St., Phila., engrs.

▲ **Pa., Farrell**—FURNACE—Sharon Steel Corp., Sharon, electric furnace at Roemer Works, **$6,000,000.**

Tex., Austin—WORK CENTER—Southwestern Bell Telephone Co., 308 S. Akard, Dallas, South Work Center, **$100,000.** Chas. G. Tarbell, c/o owner, engr.

† **Tex., Falcon**—WAREHOUSE—International Boundary & Water Comm. USA & Mexico, USA Sec. Box 1859, El Paso, warehouse. **$100,000.** CD 1/6/49, under Earthwork, etc.

▲ **Tex., Fort Worth**—NUCLEAR RADIATION AFFECTS FACILITIES—Consolidated Vultee Aircraft Corp., Grants Lane, nuclear radiation affects facilities, Convair Plant. **$4,750,000.**

Tex., Harlingen—WAREHOUSE—Wm. Cameron & Co., frame, masonry, metal warehouse addns. **$100,000.** Spicer-Bush Witt, 2125 Austin Ave., Waco, consult. engrs.

Tex., Houston—PLANT—A. C. Horn Co. of Texas (subsidiary Sun Chemical Corp., Long Island City, N. Y.) 817 Dowling St., paint mfg. plant, 18-acre site, off Buffalo Bayou. **$600,000.** CD 9/5/45.

Tex., Houston—SERVICE, etc.—Prudential Insurance Co. of America, 1100 Holcombe Blvd., will not construct service bldg. and garage addn. **$100,000.** Project abandoned. Kenneth Franzheim & Assoc., 802 Lovett Blvd., archt. Dale S. Cooper & Assoc., 420 Sul Ross St., and R. P. Fensch Co., 5312 Glenmont St., consult. engrs. CD 3/28.

Tex., Jacksonville—SHED and WAREHOUSE—Cherokee Co. Peach Growers Assn. Co-operative, reconstruct peach grading shed and warehouse. **$100,000.**

Tex., Jacksonville—WAREHOUSE, etc.—The Nichols Industry, Jacksonville, warehouse and addnl. plant expansion (mfg. toys). **$125,000.**

Tex., Jacksonville—SHED and WAREHOUSE—Geo. Williamson, Jr. Co-operative Shed No. 1, peach shed and warehouse, **$100,000.**

Tex., Perryton — WAREHOUSE, etc. — Dowell Oil Well Service, Inc., 1645 E. 21 St., Tulsa, Okla., brick, masonry chemical warehouse and acid storage. **$100,000.**

Tex., Plainview—GRAIN ELEVATOR—Northwest Grain & Elevator Co., 800,000 bu. steel type grain elevator. **$375,000.**

▲ **Tex., Rosenberg** — PLANT — Michigan Seamless Tube Co., South Lyon, Mich., plant to manufacture cold drawn seamless tubing on 37-acre tract just purchased 2 mi. southwest of here. **$1,000,000.**

Tex., San Antonio—SHOP, etc.—Wm. K. Holt Mchy. Co., W. Harding Blvd., plans by Merle Simpson, 612 Illinois, Weslaco, steel, concrete type sales, service and shop. on W W Wgite Rd. **$100,000.** Joe T. Strother, 2501 Van Buren, Houston, consult. engr.

▲ **Man., Winnipeg**—FACTORY—Campbell Soup Co. Ltd., 60 Bermingham Rd., New Toronto, Ont., factory, Winnipeg area, **$3,000,000.**

Ont., Nipigon—PLANT—Northern Plywoods Ltd., c/o Mill Valley Lumber Co. Ltd., Oshawa, 15,000 sq. ft. concrete block and laminated wood plywoods plant. **$250,000.**

▲ **Ont., Steep Rock Lake**—MINE EXPANSION—Steep Rock Iron Mines Ltd., Steep Rock Lake, 100x300 ft., steel mine expansion program, incl. headframe, hoist and dry bldg. 3 and ¾ mi. north of Atikokan on Canadian Natl. Rys. **$25,000,000.** Watkin Samuel, 25 King St. W., Toronto, consult. mining engr.

Ont., Toronto—BREWERY—Jubilee Limited, c/o Brading's Breweries Ltd., 840 Wellington, Ottawa, brewery on 21 acre site on Ellesmere Ave. at Highway 401, Scarborough. **$200,000.**

Que., Quebec City—INDUSTRIAL CENTRE, etc.—Canardiere Estates Ltd., Quebec City, sites purchased for industrial centre and shopping centre, Canardiere Rd. and St. Anne Blvd. **$500,000.**

▲ **Que., Shawinigan East**—PLANT—Shawinigan Chemicals Ltd., Shawinigan Falls, subsidiary of Shawinigan Water & Power Co., 600 Dorchester St., Montreal, Que., plans by Vickers-Krebs Ltd., 4970 Notre Dame St. E., Montreal, caustic soda and chloride mfg. plant, 50-acre site. **$3,500,000.** Bids in August.

UNCLASSIFIED

Conn., New Haven—PLAYGROUNDS, etc.—City, hard surface various playgrounds, **$200,000;** outdoor ice skating rink, **$85,000;** develop park facilities, new restaurant, Lighthouse Park, **$500,000.** Wm. Bolton, city engr.

▲ **Ill., East St. Louis**—SWIMMING POOL, etc.—Bd. Park Comrs. East St. Louis Park Dist., 929 Missouri Ave., revised plans by Paul J. Saunders, 3232 States St., **(A)** swim pool related imprvs., automobile parking facilities in Jones Park **(B)** swim pool and related imprvs. in Lincoln Park, **$1,350,000.** New bids soon. CD 7/17.

Iowa—TELEPHONE SYSTEM EXTENSIONS—Farmers Telephone Co., Allan Obert, mgr., Essex, sys. extens. and improvs., incl. 37 mi. lines, reconstr. 89 mi. existing lines, dial central office and headquarters in Essex, **$252,000.** CD 7/30/48.

Kan., Emporia — SWIMMING POOL — City, **$185,000** bond election Aug. 7, for municipal swimming pool, etc. R. W. Cunningham, City Hall, city engr. CD 7/16.

Missouri—GAS LINES—Missouri Natural Gas Co., Farmington, high pressure gas line Festus to DeSoto, Mo., incl. 1 mile 10 in. and nine 8 in pipe, and high pressure main of 6 in. and 4 in. pipe to serve Pevely and Herculaneum. **$100,000.**

▲ **Nebraska** — SUB-STATIONS — Nebraska Public Power System, Columbus, sub-station, Loup City, **$250,000;** sub-station, Albion, **$250,000;** sub-station, Neligh, **$100,000;** sub-station, Winnebago, **$400,000;** sub-station, Oakland, **$600,000;** sub-station, North Platte, **$350,000.** P. E. Hampton, c/o owner, ch. engr.

N. J., Elizabeth—GAS MAINS, etc.—Elizabethtown Gas & Electric Co., 16 W. Jersey St., plans by Franklin Hudson, 16 W. Jersey St., installing two gas mains and water main under Elizabeth River. **$150,000.** Bids in April.

O., Brook Park—SWIMMING POOL—Village, 5950 Eastland Rd., bond election Nov. 6, municipal swimming pool. **$155,000.**

▲ **O., Cleveland** — IMPROVEMENTS — City, City Hall, Zone 14, municipal bond election Nov. 6 to pay for improvements needed for Pan-American games. **$1,500,000.** CD 11/7/52.

O., Columbus—STADIUM—Ohio State University, N. High St., baseball stadium. **$238,000.**

O., Eaton—SWIMMING POOL—Village, bond election Nov. 6, swimming pool, **$125,000.**

O., Shaker Heights—SWIMMING POOL—City, City Hall, 3400 Lee Rd., Cleveland, Zone 20, bond election Nov. 6 for municipal swimming pool. **$400,000.**

Texas—GAS LINES—Permian Basin Pipe Line Co., Midland, 19 mi. 16 in, gas lines, Andrews Co. **$326,000.**

Texas — ETHYLENE LINE — Phillips Chemical Co., Adams Terminal, Houston, 79 mi. 4- to 6-in. ethylene line, Sweeny to Pasadena, **$474,000.**

Texas—L.P.G. LINE—Phillips Petroleum Co., City National Bldg., Houston, 15 mi. 6-in. L.P.G. line in area of Sweeny, **$110,000.**

Tex., Lubbock—MASOLEUM—Tech Memorial Park, c/o Cantrell, Burns, Witaker & Assoc., archts., 809 Great Plains Life Bldg., rein.-con., marble masoleum. **$200,000.**

Tex., Smithville—PIPE LINES—Texas-New Mexico Pipe Line Co., c/o Melrose Bldg., Houston, 24 mi. 8 in. crude line and take up and recondition 28 mi. 6 in. crude line near Smithville and Lockhart. **$210,000:**

Ont., Toronto—FERRY DOCK—Municipality of Metropolitan Toronto, 67 Adelaide St., plans concrete ferry dock at Centre Island, **$250,000.**

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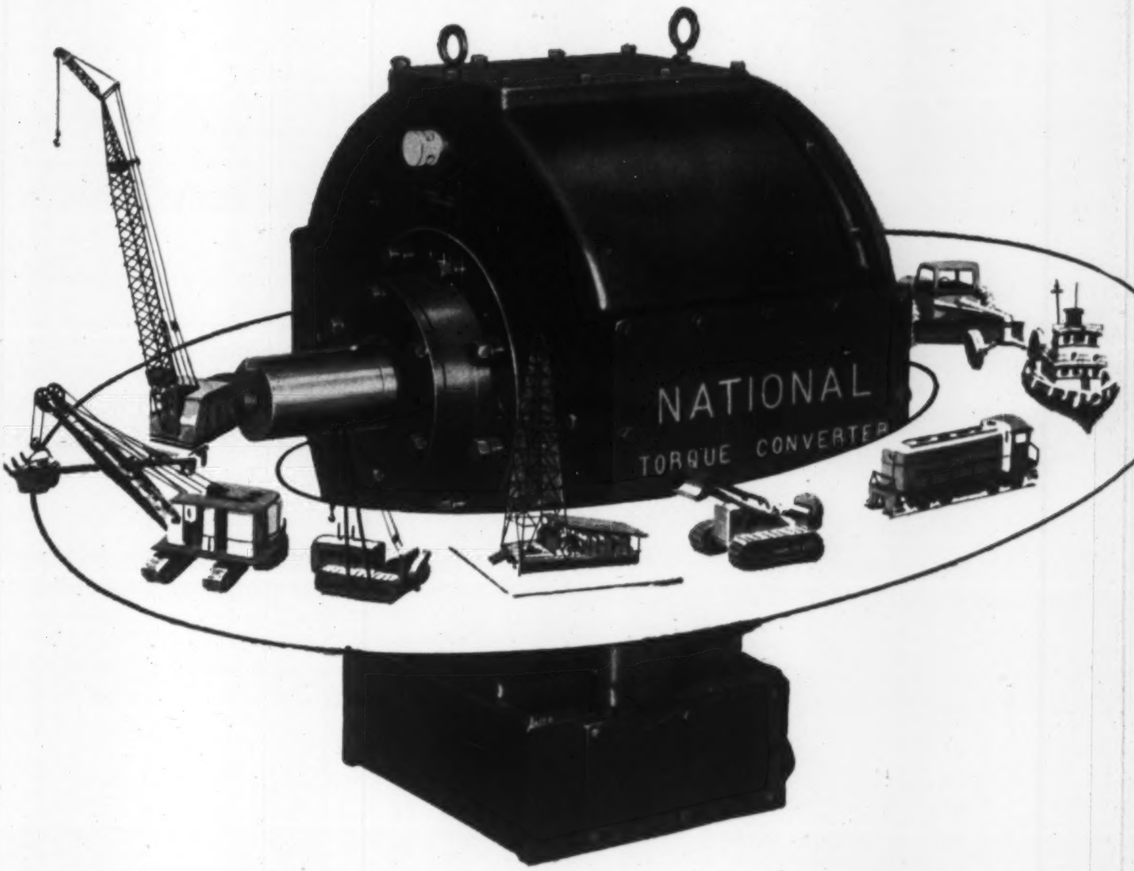

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NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **New Hampshire and Maine**—FACILITIES—BA 8/14—U. S. Eng., 150 Causeway St., Boston 14, Mass., constr. facilities, Fort Dearborn, Portsmouth, N. H.; access road, generator bldg. and facilities at Musquash Mountain, Topsfield, Me.; access road, three generator bldgs., facilities No. 9 Mountain, Bridgewater, Me., Eng. 19-016-57-13, $400,000-$450,000. Plans deposit $10 refundable. CD 7/20.

▲ **Massachusetts**—TUNNEL—BA 8/16—Commonwealth of Mass., Metropolitan Dist. Comn., Constr. Div., 20 Somerset St., Boston, Proj. 243, Malden Tunnel Sect. "A" of Spot Pond Brook Flood constrol, 1 mi. rock tunnel etc., Malden, $1,800,000.

▲†**Mass., Falmouth**—AIR NATIONAL GUARD TAXIWAY—BA On Or About 8/21—U. S. Eng., 150 Causeway St., Boston, Zone 14, air national guard taxiway and parking apron, Otis Air Force Base, ENG-19-016-57-20. $1,000,000-$1,250,000.

BUILDINGS—BA

▲ **Conn., Westport**—School—BA 8/15—Town, School Bldg. Comn., Town School Office, Jessup Rd., 145,000 sq. ft. Senior High School, North Ave. $2,620,000. Extended date. Plans deposit $75, refundable. Sherwood Mills & Smith, 65 Broad St., Stamford, archts. Marchant & Minges, 1007 Farmington Ave., West Hartford, struct. engrs. CD 7/10.

Mass., **Fall River**—HOME—BA 8/16—Catholic Diocese of Fall River, Most Rev. James L. Connolly, bishop of Fall River, nursing and convalescent home for aged and chronically ill, 2446 Highland Ave. $750,000, Maginnis, Walsh & Kennedy, 126 Newbury St., Boston, archts. CD 4/20.

▲ **Conn., New Britain**—SCHOOL—BA 8/30—Town, Dr. J. T. Cook, supt. Schools, 27 Hillside Pl., Southwest Junior High School, Steele St. $1,200,000. Plans deposit $150. John W. Priestley, Jr., Sun Bldg., Lowell, Mass., archt. CD 10/18.

▲ **Conn., New Britain**—SCHOOL—BD 9/13—Town, Dr. J. T. Cook, supt. Schools, 27 Hillside Pl., North Junior High School, Farmington Ave. $1,261,000. Plans deposit $150. John W. Priestley, Jr., Sun Bldg., Lowell, Mass., archt. CD 3/27.

HEAVY CONSTRUCTION—LB & CA

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord,

Arthur Whitcomb Constr. Co., Inc., 725 Main St., Keene, N. H. LB **$635,351**. (3 bidders) road mix 3.53 mi. hy. and 4 bridges on NH 11 and 103, Newport-Sunapee. Bids July 26. CD 7/18.

R. **Zoppo Co., Inc.**, 842 Boston-Providence Hy., Norwood, Mass. CA **$569,335**. convert Cohituate Aqueduct from water to trunk line sewer, NEWTON, MASS. City, City Hall, Newton, Mass. CD 7/18, under LB.

▲† **Carrier Corp.**, 385 Madison Ave., New York, N. Y., LB **$1,260,580**, est. $1,300,000. six 3,000 hp. steam turbine accessories, MIDDLETOWN, CONN. U. S. Eng., 150 Causeway, Boston, Mass.

BUILDINGS—LB & CA

Consolidated Constructors, Inc., 807 Congress St., Portland, Me. LB **$486,600**. Est. $400,000. HOSPITAL addn., North St., WATERVILLE, ME. Thayer Hospital, Bd. Trustees, Waterville, Me. James H. Ritchie & Assoc., 135 Clarendon St., Boston, Mass., archts.

▲ **Edwin Moss & Son Inc.**, 555 Grant St., Bridgeport, Conn., CA, **$1,000,000**. 100,000 sq. ft. FACTORY, River Rd., SHELTON, CONN. United Shoe Machinery Corp., 520 Main St., Ansonia, Conn. S. O. & C. Co., subsidiary) will operate. Awarded July 24. CD 3/27.

Palmer Tarinelli Constr. Co. Inc., 144 Island Brook Ave., Bridgeport, Conn., LB **$498,000** (only bidder) Proj. BI-B-117, GIRLS' COTTAGE No. 18, Southbury Training School, SOUTHBURY, CONN. State P. Wks. Dpt., 165 Capitol Ave., Hartford, Conn. Bids July 25. CD 7/10.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

PENNSYLVANIA—BA 8/14—Pennsylvania Turnpike Comn., 11 N. Fourth St., Harrisburg, constr. curbing and drainage at interchanges, Contr. 251 Carlisle, Gtttysburg Pike, Harrisburg West and Harrisburg East; Contr. 251A Lebanon-Lancaster, Reading and Morgantown. Plans deposit $10.

Contr. 437 Valley Forge, Norristown, Northeast and Fort Washington; Contr. 437A Willow Grove, Philadelphia and Delaware Valley, Plans deposit $10.

Contr. 574—A-B-B—Lansdale, Quakertown, Lehigh Valley and Pocono. Plans deposit $10, R. B. Stone, ch. engr. CD 10/28/53.

BUILDINGS—BA

Md. **Towson**—SCHOOL—BA 8/14—Baltimore Co., Bd. Educ., Aigburth Rd., Featherbed Lane Elementary School, near Baltimore, $650,000. Plans deposit $50. Tyler, Ketcham & Myers, 513 Park Ave., Baltimore, Zone 1, archts.

▲ **N. J., Pompton Plains**—HIGH SCHOOL—BA 8/14—Bd. Educ., Pequannock Twp., Pompton Plains, high school, Pequannock Twp. $1,250,000. Lester B. LaPierre & Clarence B. Litchfield & Partners, 292 Madison Ave., New York 17, N. Y., archts. CD 2/20/55, under N. J., Pequannock.

▲ **N. Y., New York**—SCHOOL—BA 8/21—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, P. S. 8 East 201 St. and Mosholu Parkway, Bronx Boro. $2,113,100. Plans deposit $25, for general constr., $7 each plumbing, and drainage, heating and ventilating, electrical work and lighting fixtures. Extended date. CD 7/12.

▲ **N. Y., New York**—SCHOOL—BA 8/22—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, general constr. P. S. 175, West 134 and 135 Sts., between Lenox and Seventh Aves., Manhattan Boro. $1,502,200. Plans deposit $25. Extended date. CD 7/24.

▲ **N. Y., New York**—SCHOOL—BA 8/28—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, Jr. H. S. 45, Manhattan, 120 St. between First and Second Aves., $3,740,000. Plans deposit $25 general constr., $10 each for plumbing and drainage, heating and ventilationg, electrical work and lighting fixtures. CD 1/20/55.

▲ **N. Y., New York**—SCHOOL—BA 9/5—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, general constr., plumbing and drainage, heating and ventilating, electrical work and lighting fixtures for P. S. 103, Manhattan West 97 St., between Amsterdam and Columbus Aves. $2,000,000. Plans deposit $25 for general constr., $7 each for trades. CD 3/2/55.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—John W. Johnson, supt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany,

N. Y.—John Arborio, Inc., West Cedar St., Poughkeepsie, N. Y. LB **$172,747**. (2 bidders) paving north roadway on 1.35 mi. east approach to Kingston-Rhinecliff Bridge now under constr. across Hudson River about 3 mi. north of Kingston, Dutchess Co.

N. Y.—received no bids July 26, constr. seven span 840 ft. long welded plate girder bridge and approaches incl. interchange facilities, over Grasse River in Massena, connecting Center St. with Parker Ave., involving 1.24 mi., St. Lawrence Co., est. **$2,060,000**;

N. Y.—paving work on 0.31 mi. portion of previously graded west approach to Kingston-Rhinecliff Bridge now under constr. north of Kingston, starting just east of Rte. 32 and exten. eastward to bridge site, Ulster Co. Est. **$102,000**. CD 6/26.

Schacht Steel Constr., Inc., 1841 Broadway, New York 23, N. Y. LB **$521,800**. furnishing, fabricating, erecting structural steel for Third Avenue sub-station, Contr. P-175, BROOKLYN, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids July 13. CD 6/20.

▲ **NEW YORK**—John W. Johnson, supt. P. Wks. Dpt., The Gov. Alfred E. Smith State Office Bldg., Albany,

N. Y.—**George M. Brewster & Son, Inc.**, 275 W. Fort Lee Rd., Bogota, N. J. LB **$4,308,572**. (9 bidders) 2.76 mi. four-lane divided thruway spur connecting main 427 mi. New York-to-Buffalo-thruway sect. with Garden State Parkway now under constr. in New Jersey, Rockland Co.;

N. Y.—**Dalrymple Gravel & Contg. Co.**, 105 E. Cheming Pl., Elmira, N. Y. LB **$324,601**. (4 bidders) wid'n., resurf. 4.3 mi. of Rte. 15, starting at Rte. 333 intersection east of Campbell and exten. northwestward to south St. in Savona, Steuben Co.;

N. Y.—**E. G. Delia & Sons Constr. Corp.**, 30 Campion Rd., New Hartford, N. Y. LB **$335,514**. (6 bidders) relocation of 2.43 mi. sect. Rte. 148, starting at north end of Gloversville's Rte. 148 bypass at east state St. near northeast village line and exten. northeastward on new location north of present hy. to rejoin existing route about 2 mi. southwest of Mayfield, Fulton Co.;

N. Y.—**Binghamton Constr. Co., Inc.**, 307-9 Marine Midland Bldg., Binghamton, N. Y. LB **$363,925**. (1 bidder) emergency resurf. 5.8 mi. Rte. 17, starting about 200 ft. east of Windsor's corp. line and exten. eastward to about ½ mi. east of Windsor-Sanford town line, Broome Co.;

N. Y.—rejected bid July 26, installing traffic signal sys. along 5.13 mi. sect. of Massena's south side arterial route (Rte. 37) from Rte. 56 intersection northeastward to Robinson Tunnel, St. Lawrence Co.;

N. Y.—received no bids July 26, landscaping and misc. constr. work along 7.33 mi. sect. of Major Deegan Expressway between 138 St. and Westchester Co. line, Bronx Co. Est. **$360,000**;

N. Y.—constr. 0.78 mi. depressed portion of new six-line divided Prospect Expressway between Fifth and Tenth Aves., 1.63 mi. access roads, incl. constr. hy. grade separation structures to carry Sixth Ave., Seventh Ave., and Prospect Park west traffic over Expressway and pedestrain overpass at Eighth Ave., Kings Co. Est. **$5,536,000**. CD 7/9 and 6/26.

Shoreland Constr. Co., 250 Mechanic St., Red Bank, N. J. CA, **$464,850**. Contr. 13 Cooper River intercepting sewer in public streets, public property and/or rights-of-way of city, CAMDEN, N. J. City, City Hall, Camden, N. J. Bids July 6. CD 6/22.

H. L. Lewis Constr. Co., Middletown, Pa. LB **$498,162**. est. $360,000. corrections to plumbing at Huntingdon State Institution, HUNTINGDON, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids July 25. CD 7/9.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore Zone 2,

Md.—**A. H. Smith**, Branchville, Md. LB **$130,920**. (3 bidders) resurf. 11.9 mi. State Rte. 231, C 204-4-520 and CH 272-5-520, Charles and Calvert Counties;

Md.—**F. C. Ahser Jr. & Sons, Inc.**, 1715 West Ext., Annapolis, Md. LB **$472,760**. (5 bidders) wid'n., relocation, surf. 6.011 mi. State Rte. 280, CE-395-1-220, Cecil Co. Bids July 24. CD 7/12.

BUILDINGS—LB & CA

Lefrak Organization, 97-27 64 Rd., Forest Hills, N. Y. Separate Contracts. **$500,000**. 5-7 story OFFICE, Queens Blvd. and 64 Ave., FOREST HILLS, N. Y. CD 9/26/55.

Salvatore Milone, c/o Dominick Milone, Inc., 50 Merrick Rd., Rockville Center, N. Y. CA Est. **$400,000**. OFFICE, Cutter Mill and Middle Neck Rds., GREAT NECK, N. Y. Central Bank & Trust Co., c/o National Bank of Great Neck, 1 South Middle Neck Rd., Great Neck, N. Y. CD 7/12/55.

Carlton Bros., Fort Lee, N. J. CA **$580,374**. general contr. ELEMENTARY SCHOOL, NANUET, N. Y. School Dist., Nanuet, N. Y. Ralph E. Hacker, New Milford, N. J., archt.

▲ **Sherwood at Manhasset Hills**, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. **$7,000,000**. 211 HOUSES Denton Ave. north of Hillside Ave., WILLISTON PARK, N. Y.

▲ **Martin Dubin**, 330 Boulevard, Mountain Lakes, N. J., Owner Builds. **$1,500,000**. 47 HOMES, Crescent Ave., ALLENDALE, N. J. Gebhardt, Matin & DiPabla, 205 Broad Ave., Fairview, N. J., archts.

Robert E. Lamb & Son, 3429 W. Indiana Ave., Phila., Pa. CA, **$750,000**. 5 story, brick, 100,000 sq. ft. PROCESSING BLDG., CAMDEN, N. J. Campbell Soup Co., 100 Market St., Camden, N. J. CD 7/18.

George Siegler, 408 Summit Ave., Jersey City, N. J., CA, **$450,000**. SYNAGOGUE, ENGLEWOOD, N. J. Emanu-El Temple Congregation, c/o Kelly & Gruzen, archts., 80 Fifth Ave., New York, N. Y.

William M. Walsh Co., 115 78 St., North Bergen, N. J. CA, **$648,290**. 40-unit HOUSING on east side of Broadway between 69 and 70 Sts., GUTTENBERG, N. J. Housing Auth., Guttenburg, N. J. CD 7/19.

Ben Schreiber, 407 Sagamore Ave., Teaneck, N. J. Owner Builds. **$600,000**. 20 HOMES, Section 2, Hillsdale Park development, Hillsdale Ave. and Paul Court, HILLSDALE, N. J. Harsen & Johns, Railroad and Summit Aves., Tenafly, N. J., archts.

▲ **Gumina Bldg. & Constr. Co.**, Larch Ave., New Brunswick, N. J., CA, **$1,105,298**. general contract Central SCHOOL addn., MIDDLETOWN, N. J. Bd. Educ., Middletown Twp., Middletown, N. J. CD 7/17, under LB.

▲ **Lawrence D. Elkind**, 41 E. 40 St., New York, N. Y., Owner Builds. **$3,750,000**. 250 HOMES, Park Rd., Morris Twp., MORRISTOWN, N. J.

▲ **George M. Brewster & Son**, State Hy. No. 4, Paramus, N. J., Owner Builds, **$2,000,000**. 50 HOMES, Paramus Rd. north of Arcola County Club, PARAMUS, N. J. Robert Dentz, 32 Paula Dr., Bergenfield, N. J., archt.

▲ **Wigton Abbott Corp.**, 1225 South Ave., Plainfield, N. J., CA, Est. **$1,250,000**. Scientific Research LABORATORY, Littleton Rd., PARSIPPANY, N. J. Texas-U. S. Chemical Co., 260 Madison Ave., New York, N. Y. Ben Belkin, c/o contractor, archt

▲ **Quad Associates**, (Sol Turetsky & Harold Herzog) 2339 Hudson Terrace, Coytesville, N J., Owner Builds, **$2,000,000**. 160 HOUSES, Riverview Estates, PHILLIPSBURG, N. J. Julius Henning, 600 River Rd., New Milford, N. J., archt.

Fucetola Brothers, 25 River Rd., North Arlington, N. J., CA Total est. **$500,000**. general contract 175x601 ft., STORE with parking area, 37-acre tract, Route 10, TOTOWA, N. J. 2 Guys' from Harrison, 501 South 5 St., Harrison, N. J. Frederick Fischer, 31 River Rd., North Arlington, N. J., archt.

Whitford Country Club, Exton, Pa. Separate Contracts. **$350,000**. CLUB HOUSE, pool, bathhouse, golf course, tennis courts, EXTON, PA. Wallace & Warner, Lancaster Pike, Bryn Mawr, Pa., engrs.-archts.

Penn Hill Homes, Inc., c/o Jay Beck, Box 325, Penndel, Pa. Separate Contracts. **$350,000**. RESIDENTIAL DEVELOPMENT, Penn Hill Dr., PARKLAND, PA.

▲ **David Warren Constr. Co.**, 370 Montgomery Ave., Marion, Pa. Separate Contracts. **$1,350,000**. RESIDENTIAL DEVELOPMENT, 136 units, Rugby St., PHILA., PA. Jack Siverman, 405 Market St., Chester, Pa., archt.

Joseph E. Heffernan, Rowland Ave. and Guilford St., Phila., Pa. CA **$435,000**. two 3 story 95x38 ft., and 115x38 ft., brick block, steel CONVENT BLDGS., 10 and Moore Sts. and 11 and Watkins Sts., PHILA., PA. R. C. Archdiocese of Phila., 225 N. 18 St., Phila., Pa. Stickle & Assoc., 135 Narberth Ave., Narberth, Pa., engrs.-archts.

Paul Lomakin & Rudi Wadle, 14 Locust Ave., Millburn, N. J., Owner Builds. **$450,000**. 21 HOUSES, Halsted Rd. and Conaut Ave., UNION, N. J. Stephen Potter, 401 Colonial Ave., Union, N. J., archt.

▲ **Henry J. Knott**, 2 W. University Parkway, Baltimore 18, Md. CA **$5,000,000**. Broadway REDEVELOPMENT PROJ., incl Medical Arts Bldg., 120-room inn, 120 garden type apartment units, parking lot, shopping center, 26 acres, BALTIMORE, MD. Henry J. Knott, 2 W. University Parkway, Baltimore 18, Md. and Johns Hopkins Medical Institutions, Broadway and Mohument Sts., Baltimore, Md. A. S. Cochrane & Assoc., 925 N. Charles St., Baltimore 1, Md., archts.

Wm. H. Sand 407 York Rd., Towson, Md. CA **$793,900**. Hampton Elementary SCHOOL, Dulaney Valley Rd., TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson, Md. CD 7/26, under LB.

(Continued on page 120)

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(Continued from page 118)

SOUTH

BUILDINGS—BA

▲ **Ky., Lexington**—MANUFACTURING—BA 8/21—Square D Co., 6060 Rivard St., Detroit, Mich., 1 story, 183x835 ft., brick, rein.-con. mfg. bldg., 60x102 ft. boiler room, $2,500,000. Giffels & Vallet, Inc., 1000 Marquette Bldg., Detroit, Mich., engr.

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Richmond-Petersburg Turnpike Auth., 1015 E. Main St., Richmond,
Blythe Bros. Co., P. O. Box 989, Charlotte, N. C., CA, **$1,581,805**. grading, drainage, paving structures approx. 2.5 mi. Contr. D-1-G, Sect. D from Appomattox River to point 3,600 ft. north of Rte. 624 in Colonial Heights, Chesterfield Co. Bids July 12, awarded July 25. CD 7/17, under LB.

† **P. Wks. Office**, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va., rejected bids June 7, special Projects Bldg., Naval Air Station, NOy 91348, Spec. 48279, CHINCOUTEAGUE, Va. LB **$612,500**. CD 6/13, under LB.

FLORIDA—State Road Dpt., Tallahassee,
Central Florida Constr. Co., Box 242, Miami 48, Fla., CA, **$505,334**, maint. traffic, excav., limerock base, with surb. c. conc., resurf. existing pavement with b. conc., 2 multiple box culverts, drainage structures 10.053 mi. SR 45, F-012-1 (5) Jobs 1201-203 and 1201-119, Lee Co. Bids May 3, awarded July 23. CD 5/9, under LB.

▲ **FLORIDA**—State Road Dpt., Tallahassee,
Diamond Constr. Co., Box 647, Savannah, Ga., CA, **$995,382** bridge over Loxahatchee River near Jupiter, F-003-3 (24), Job 9304-204, SR 5, Palm Beach Co. Bids July 12, awarded July 26. CD 7/19, under LB.

ALABAMA—State Hy. Dpt., Montgomery,
Ala.—**Laidlaw Co.**, Wolf Ridge Rd., Mobile, Ala., LB **$866,756**. bit. 11.288 mi. US 42, Mobile Co.;
Ala.—**J. R. Bryant Co.**, Bell Bldg., Montgomery, Ala., LB **$311,639**. base, bit. 9.023 mi. US 31, Cullman Co.;
Ala.—**Hillabee Constr. Co.**, Alexander City, Ala., LB **$84,791**. base, bit. 11.948 mi. county roads, Coffee Co.;
Ala.—**M. A. Evans Constr. Co.**, Wetumpka, Ala., LB **$77,835**, base, bit. 7.913 mi. Chootaw Co.;
Ala.—**O'Dell Constr. Co.**, Prattville, Ala., LB **$91,021**. bit. 5.719 mi. Bibb Co. Bids July 20. CD 7/9.

McGowen Constr. Co., Opelika, Ala., CA **$217,687** sanitary sewerage sys. imprvs., MONROEVILLE, ALA. City, City Hall, Monroeville, Ala. Bids July 10. CD 6/22.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,
Ky.—**Middle West Roads Co.**, 1201 Shore St., Louisville, Ky., LB **$77,646**. (8 bidders) bit. con. surf. Class 1 10.7 mi., various roads, Jefferson Co.;
Ky.—**Wood & Bush Co.**, 410 Ann St., Frankfort, Ky. LB **$300,141**. (4 bidders) bank or creek grav. 5.917 mi., Pineville-Manchester Rd., S 325 (6), SP 26-305, SP 66-372, Clay and Leslie Counties;
Ky.—**The Allen Co., Inc.**, Winchester, Ky. LB **$249,490** (3 bidders) b. conc. Class I surf. 1.249 mi., Irvine-Richmond Rd. (Ky 52), S 616 (1), S 616 (2), SP 33-83 SP 76-31, Estill and Madison Counties;
Ky.—**Kentucky Road Oiling Co.**, Frankfort, Ky. LB **$136,955**. (2 bidders) b. conc. Class I 18.825 mi. various roads, Elliott and Morgan Counties;
Ky.—**Adams Constr. Corp.**, Paintsville, Ky. LB **$113,733**. (2 bidders) b. conc. surf. Class I 12.775 mi. various roads, Floyd Co.; LB **$87,101**. (2 bidders) bit. surf. Class C-1 (limestone aggregate) 8 mi., various roads, Johnson Co.;
Ky.—**State Contg. & Stone Co.**, Hartford, Ky. LB **$74,717**. (3 bidders) bit. surf. Class C-1 11.9 mi. various roads, Hopkins Co.;
Ky.—**Lloyd Mason**, Madison, Ind. LB **$82,536**. (3 bidders) bit. surf. Class C-1 (crushed gravel aggregate) 17.32 mi., various roads, Boone, Gallatin and Grant Counties;
Ky.—**Mago Constr. Co.**, Bardstown, Ky. LB **$139,473**. (3 bidders) b. conc. surf. Class I 11.451 mi. various roads, Logan Co.;
Ky.—**Ky.—Va. Stone Co., Inc.**, Middlesboro, Ky. LB **$73,114**. (2 bidders) b. conc. surf. Class I 1.197 mi. Ky. 74 cut off Rd., US 650 (1) SP 7-444, Bell Co.;
Ky.—**Edward Burd & J. O. Evans**, Mayfield, Ky. LB **$122,034**. (3 bidders) bank or creek grav. 4.534 mi. Arlington-Berkley Rd., S 601 (1), RS 20-324, Carlisle Co. Bids July 20. CD 7/10.

BUILDINGS—LB & CA

T. W. Poe & Sons, Snow Bldg., Durham, N. C. LB **$730,415**. 130,000 sq. ft. STATE OFFICE, RALEIGH, N. C. State Bd. P. Bldgs. & Grounds, Agriculture Bldg., Raleigh, N. C. Bids July 24. CD 6/25.

Gene White Contg. Co., 910 4-Lane Highway, Marietta, Ga., LB **$798,900**. 5 SCHOOLS, TOCCOA, GA. State School Auth., Kemper Bldg., Atlanta, Ga. Awarded July 24.

MIDDLE WEST

BUILDINGS—SLC

Ind., Anderson—Anderson College & Theological Seminary, soon lets contract 2 story, 69x137 sq. ft. masonry, steel, rein.-conc. library, $500,000. Arthur B Henning, 514 Anderson Bank Bldg., archt. Ammerman, Davis & Stout, K. P. Bldg, Indianapolis, consult. engrs. CD 6/7/54.

HEAVY CONSTRUCTION—LB & CA

Great Lakes Dredge & Dock Co., Williamson Bldg., Cleveland, O. CA **$578,105**. (2 bidders) water pumping and filtration plant, MENTOR, O. Ohio Water Service Co., Struthers, O. Burgess & Niple, 2015 W. Fifth Ave., Columbus, O., engrs. Awarded July 19.

▲ **S. N. Nielson**, 3059 Augusta Blvd., Chicago, Ill., LB **$1,844,837**, filter plant, pumps and pipe lines addn., WILMETTE, ILL. Village, Village Hall, Wilmette, Ill. Bids July 24. CD 6/28.

MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,
Bacco Constr. Co., Iron Mountain, Mich., CA **$520,441**, est. $530,000. 23 ft. base course, with prime and double seal 8.694 mi. on M-94 from west county line east to Chatham, SS 2-3 C2-R (S 109 5), Alger Co CD 7/26, under LB.

MICHIGAN—State, Purch. Div., 107 Lewis Cass Bldg., Lansing,
Mich.—**Bethlehem Steel Co.**, 3-235 General Motors Bldg., Detroit, Mich. LB **$106,560**, est. $100,000. (5 bidders) 740,000 lb structural steel for bridge on Beecher Rd. over relocation of US-23 ½ mi. west of Flint, BIN B3 of 25-7-3 C1-RO (BIN C7-2 9), Genesee Co.;
Mich.—**R. C. Mahon Co.**, 6565 E. Eighth Mile Rd., Detroit, Mich. LB **$404,550**, est. $500,000. (4 bidders) 2,790,000 lb. structural steel for bridge on relocation of US-23 over Flint River ½ mi. west of Flint, BIN B1 of 25-7-3 C1-RO (BIN 07-2-9), Genesee Co.; LB **$230,591**, est. $250,000. (5 bidders) 1,635,400 lb. structural steel for bridge on M-46 relocation over Saginaw River, F B1 of 73-7-7 C1-U F 206 7), Saginaw Co. Bids July 19. CD 7/9.

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,
Mich.—**Holloway Constr. Co.**, Grosse Pointe Woods, Mich. and **Denton Constr. Co.**, 20415 Mack St., Grosse Pointe, Mich. LB **$2,234,824**, est. $2,240,000. (13 bidders), dual 24 ft. c. conc. 6.248 mi. relocation US-23 from north of Pasadena Rd. to south of Dodge Rd., BIN 25-54 C1-r0, (BIN 07-2 11), Genesee Co.;
Mich.—**Wright Constr. Co.**, 3800 Wood St., Lansing, Mich. LB **$179,298**, est. $180,000. (6 bidders) 22 ft. b. conc. Class I surf. 4.791 mi. M-15 from south county line north to Hadley road exclud. Goodrich Village, M-25-17 C8-R, Genesee Co.;
Mich.—**Midland Contg. Co.**, Midland, Mich. and **Tri-City Contg. Co.**, Midland, Mich. LB **$178,130**, est. $150,000. (2 bidders) 23 ft. aggregate base course 2.675 mi. on FAS Rte. 146, CS 9-52 C1 (S 850 1), etc., Bay Co.;
Mich.—**Globe Constr. Co.**, Kalamazoo, Mich. LB **$259,551**, est. $250,000. (4 bidders) c. conc. 1.179 mi. US-131 from Kalamazoo Dr. to city limits, F 39-2 C2-U (F 164 13), Kalamazoo Co.;
Mich.—**L. W. Edison Co.**, 924 Floral Dr. S.E., Grand Rapids, Mich. LB **$303,075**, est. $320,000. (9 bidders) 22 ft. conc. 1.507 mi. on US-131, M-39-6 C4-RN, Kalamazoo Co.; LB **$897,575**, est. $920,000. (9 bidders) 22 ft. wide 3.887 mi., also c. conc. 2.173 mi. US-131 from M-60 northeast, M-78-5 C8-Rn, etc., St. Joseph Co.;
Mich.—**West Shore Constr. Co.**, Zeeland, Mich. LB **$218,858**, est. $230,000. (6 bidders) b. conc. 40 and 44 ft. wide 5.776 mi. M-50 from west county line to west limits Grand Rapids and from Sand Creek to west County line, M-41-30 C10-R, etc., Kent Co.;
Mich.—**Williams Bros. Paving Co.**, Ionia, Mich. LB **$100,998**, est. $100,000. (6 bidders) bit. aggregate 8.71 mi. Price Rd., Francis Rd., Wright Rd. various sections, CS 19-31 C4 (S 838 1), etc., Clinton Co.;
Mich.—**Titus Constr. Co.**, Kalamazoo, Mich. LB **$225,538**, est. $210,000. (11 bidders) b. conc. 2.069 mi. M-89, US-131, SS 3-5 C3-U, etc., Allegan Co.;
Mich.—**General Paving Co.**, 235 Union Ave. S.E., Grand Rapids, Mich. LB **$179,060**, est. $180,000. (9 bidders) 22 ft. b. conc. 7.976 mi. on M-57 east limits of Greenville east to M-66, F 59-42 C6-R (F 418 4), Montcalm Co.;
Mich.—**A. L. Dyer & Sons**, McBrides, Mich. LB **$85,199**. est. $80,000. (3 bidders) 21 ft. aggregate base 2.683 mi. M-90 from Malvin east to M-19, M-74-13 C6-R, Sanilac Co.;
Mich.—**Sparton Asphalt Paving Co.**, Holt, Mich. LB **$87,974**, est. $100,000. 42 ft. b. conc. 2.02 mi. US-127 to a point 1.15 mi. south of Lansing, M-35-06 C8-RO, etc., Ingham Co.;
Mich.—**A & A Asphalt Paving Co.**, Haynes St., Birmingham, Mich. LB **$123,416**, est. $130,000. b. aggregate 11.711 mi. M-81 from M-24 to M-53, SS 44-31 C11-R, Lapeer Co. Bids July 18. CD 7/12 and 7/9.

BUILDINGS—LB & CA

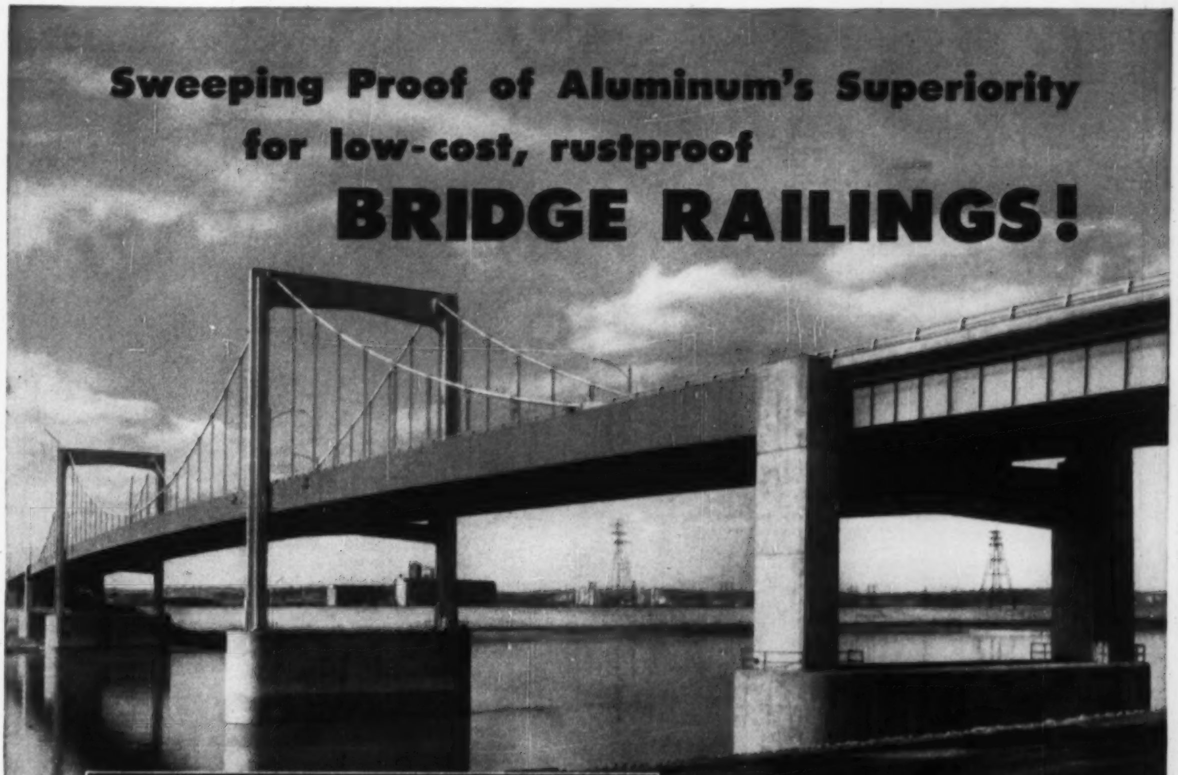
John M. Peters Constr. Co., 1075 Brookpark Rd., Cleveland 9, O. CA Est. **$750,000**. 1 story, brick, concrete WAREHOUSE and OFFICE for lease to Carson, Pirie & Scott, Chicago, Ill., INDEPENDENCE, O. West Creek Corp., Dan Caplan, pres., 7555 Bessemer Ave., Cleveland 27, O. Milo S. Holdstein, 1030 Euclid Ave., Cleveland 15, O., archt. Awarded July 10. (**Correction**—location of project). CD 7/23, under Mo., Independence.

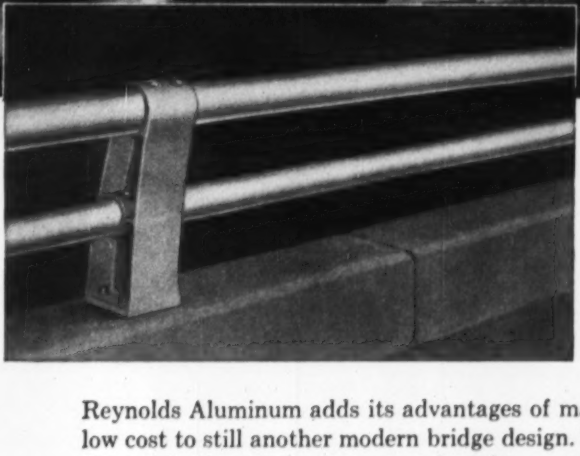
Sam Babilla Constr. Co., 933 W. 35 Ave., Chicago, Ill., LB **$433,939**. Riley Elementary SCHOOL, 1100 E. 43 Ave., GARY, IND. School, City of Gary, 524 Garfield St., Gary, Ind. Bids July 17. CD 7/2.

Erik A. Borg Co., 6649 N. Ridge St., Chicago, Ill. CA **$620,954**. general contract, ELECTRICAL ENGINEERING and PHYSICS BLDG., 33 and Dearborn Sts., CHICAGO, ILL. Illinois Institute of Technology, 3300

(Continued on page 123)

Sweeping Proof of Aluminum's Superiority for low-cost, rustproof BRIDGE RAILINGS!





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Bridge Superstructure and Erection of Railings:
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engrs. CD 6/7/54.

(Continued on page 123)

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(Continued from page 120)

S. Federal St., Chicago, Ill. Bids June 20, awarded July 24. CD 6/7.

▲ **Tonn & Blank,** 104 Franklin St., Michigan City, Ind., CA **$1,329,000.** APARTMENT for College Branch, EAST CHICAGO, IND. Purdue Calumet Development Foundation, c/o Beine Hall & Curran, archts., 607 Broadway, Gary, Ind.

George A. Fuller Co., 111 W. Washington St., Chicago, Ill., CA, **$425,000.** 3 story bsmnt., brick, HOME FOR AGED, 2321 W. 112 St., CHICAGO, ILL. Chicago Title & Trust Co., 111 W. Washington St., Chicago, Ill., trustee Hetherington Architects, 10153 Prospect St., Chicago, Ill., archts. Awarded July 20.

▲ **Power Constr. Co.,** 125 S. Marion St., Oak Park, Ill., CA **$1,427,405,** JUNIOR HIGH SCHOOL, McDaniel Ave. between Greenwood and Lake Sts., EVANSTON, ILL. School Dist. 65, 1323 Hinman St., Evanston, Ill. Bids July 17. CD 7/27, under LB.

Kaneland Community Unit School Dist. 302, Kaneville, Ill., rejected bids May 29, Kaneville JUNIOR and SENIOR HIGH SCHOOL, north of Kaneville and Anderson Property, KANEVILLE, ILL. LB **$881,186.** CD 6/14, under LB.

Hansen & Werhane, 3104 Skokie Valley Rd., Highland Park, Ill., LB **$884,839,** Thomas Jefferson JUNIOR HIGH SCHOOL, bit. paving Lewis Ave. S. of Belvidere St., WAUKEGAN, ILL. School Dist. 61, 574 McAlister Ave., Waukegan, Ill. Bids July 18. CD 7/2.

▲ **Bert L. Smokler & Co.,** 1200 Penobscot Bldg., Detroit, Mich. CA Est. **$1,750,000.** Willowbrook Village, 109 brick ranch HOMES, near FARMINGTON, MICH. Gordon Williamson Co., 19180 Grand River St., Detroit, Mich.

Miller-Davis Co., 1029 Portage St., Kalamazoo, Mich. LB **$918,500.** general constr. LIBRARY CLASSROOM Western Michigan College of Education, KALAMAZOO, MICH. State, A. N. Langius, dir. State Bldg., Dpt., Lewis Cass Bldg., Lansing, Mich. Bids June 28. CD 6/12.

Spence Brothers, 417 McKoskry St., Saginaw, Mich. LB **$696,000.** 2 story HIGH SCHOOL, MOUNT MORRIS, MICH. City, Clarence Scharer, supt. Schools, Citizens Bank Bldg., Mt. Morris Consolidated Schools Dist. 3 Fractional, Mount Morris, Mich. Bids July 6. CD 6/22.

▲ **Taft Builders, Inc.,** Cunningham and Eighth Mile Rd., Warren, Mich. CA Est. **$1,670,000.** 104 brick HOUSES, Fitzgerald Heights, WARREN, MICH. Miller Brothers Realty, 12120 Linwood St., Detroit, Mich.

WEST OF MISSISSIPPI

BUILDINGS—BA

Minn., Plainview—SCHOOL—BA 8/23—Bd. Educ., H. Lance, clk., school addn., remodel existing bldg. $900,000, Magney, Tusler & Setter, 303 Roanoke Bldg., Minneapolis, archts. CD 7/10, under LB.

▲ **Mont., Billings**—BA 8/27—Yellowstone Co., Courthouse, 8 story rein.-con. courthouse, top six stories to be finished on exterior, $1,500,000. Chandler C. Cohagen, Hedden Bldg., archt. CD 3/13/56, under LB.

Tex., Lubbock—DORMITORY, etc.—BA 9/4—Texas Technological College, Lubbock, 2 story, brick, women's dormitory and dining hall, $600,000. Atcheson, Atkinson & Cartwright, Sanford Bldg., archts. CD 6/22.

▲ **Minn., Faribault**—DORMITORY—BA 9/6—State, Dpt. Admin., P. T. Peterson, dir. Purchases, 19 State Capitol, St. Paul, Dormitory "A" and Dormitory "B" and/or Activities Bldg. for Faribault State School and Hospital. $2,000,000. Plans deposit $50 dormitories, $50 activities bldg. Haarstick, Lundgren & Assoc., N. 212 First National Bank Bldg., St. Paul, archts. CD 7/29/55.

▲† **Tex., Exell**—HELIUM PLANT—Bids Asked—Bureau Mines, Dpt. Interior, Helium Activity, Box 911, Amarillo, helium plant addn. $1,000,000-$6,000,000. Extended date. Plans deposit $100. CD 7/3.

BUILDINGS—SLC

▲ **Kan., Salina**—HOUSING—Base Procurement Office, Smoky Hill Air Force Base, soon lets contract, construct and finance 535 housing units, (Capehart), Smoky Hill Air Force Base, $7,222,500. J. R. Cushing, 2005½ Gage St., Topeka, archts. Servis, Van Doren & Hazard, 2015 Gage St., Topeka, engrs. CD 7/13.

Tex., Fort Worth—SCHOOL OF BUSINESS—BA 8/14—Texas Christian University, Fort Worth, soon lets contract, School of Business, $500,000. Wyatt C. Hedrick, T & P Bldg., archt. CD 3/9.

HEAVY CONSTRUCTION—LB & CA

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,

Brown & Leguil, Mankato, Minn. CA **$739,270.** grading 1.5 mi. between jct. TH 13 and Minnesota River, Dakota Co. Bids July 6, awarded July 26. CD 7/11.

▲ **IOWA**—State Hy. Comn., Ames,

Iowa—**Kehe Constr. Co.,** Waverly, Iowa, LB **$115,975** bridges and culverts S-1023 (5), Butler Co.;

Iowa—**Iowa Bridge Co.,** 5770 2 St., Des Moines, Iowa, LB **$474,560.** bridges and culverts UG-889 (7) Cerro Gordo Co.;

Iowa—**J. C. Costigan,** Elkader, Iowa, LB **$91,155** bridges and culverts, FM-429, Delaware Co.;

Iowa—**Cunningham-Reis Co.,** 440 Insurance Exchange Bldg., Des Moines, Iowa, LB **$129,790.** bridge and culverts, Special F-560 (2), Fremont Co.;

Iowa—**Hanson Constr. Co.,** Washington, Iowa, LB **$183,581.** Group 1, bridges and culverts Special FN-418 Mahaska and Poweshiek Counties;

Iowa—**Ben Cole & Son,** Ames, Iowa, LB **$141,477** bridges and culverts, Group 2, Special FN-418, Mahaska and Poweshiek Counties.

Iowa—**Jensen & Krage,** 2220 Hawkeye Dr., Sioux City, Iowa, LB **$154,009.** bridges and culverts FN-2, Woodbury Co.;

Iowa—**Christensen Brothers,** 3300 Borken Kettle Rd., Sioux City, Iowa, LB **$138,107.** bridges and culverts, Group 2, FN-2, Woodbury Co. Bids July 24. CD 7/12.

▲ **IOWA**—State Hy. Comn., Ames,

Iowa—**Fred Carlson Co.,** Deocrah, Iowa, LB **$132,516** c. conc. paving widn. 0.83 mi. P-1037W, Bremer Co.; LB **$131,551,** c. con. 0.573 mi. FN-109, Palo Alto Co.; LB **$194,629.** c. conc. 0.864 mi. FN-307, Palo Alto Co.;

Iowa—**Booth & Olson, Inc.,** 529 Insurance Exchange Bldg., Sioux City, Iowa, LB **$402,274.** c. conc. 2.773 mi. UN 273 (7) Woodbury Co.; LB **$193,038** c. conc. 1.74 mi. UN 273 (21) Woodbury Co.;

Iowa—**Hargrave Constr. Co.,** 2424 Bever St. S. E., Cedar Rapids, Iowa, LB **$291,457.** b. conc. pavement widn. and b. conc. resurf. 0.949 mi. UN-62, Black Hawk Co.;

Iowa—**Iowa Road Bldg. Co.,** Fairmont, Minn., LB **$474,535,** b. conc. 1.686 mi. UN-200, Black Hawk, Co.;

Iowa—**Norris Constr. Co.,** Ottumwa, Iowa, LB **$217,867** b. conc. 4.621 mi. Special P-815, Ringgold and Taylor Counties:

Iowa—**Green Constr. Co.,** 321 Locust St., Des Moines, Iowa, LB **$87,491.** b. conc. resurf. 3.069 mi. FN-906 Polk Co.;

Iowa—**Holland Bros.,** Decorah, Iowa, LB **$139,180.** grading 7.512 mi. S-2674 (1), Allamakee Co.;

Iowa—**J. D. Armstrong Co.,** Ames, Iowa, LB **$289,190** grading 20.29 mi. FN-418, Mahaska and Poweshiek Counties;

Iowa—**Ira Van Buskirk & Sons,** Hawarden, Iowa, and **H. F. Schroeder & Sons,** Carroll, Iowa, LB **$310,841** grading 4.774 mi. FN-2 Woodbury Co. Bids July 24. CD 7/12.

† **Markham & Brown & Missouri Valley Engineering Co.,** 1961 N. Industrial Blvd., Dallas, Tex. LB **$413,340,** est. $395,820. constr. repair approx. 11,330 lin. ft. pile dike and revetment Diana Bend to Cote Sans Dessein Reach, Mile 190.9 to 129.2, along Missouri River, MISSOURI. U. S. Eng., Federal Office Bldg., Kansas City 6, Mo. Bids July 26. CD 7/6.

Purtzer & Dutton, Norton, Kan. CA **$547,516,** est. $600,000. constr. of and equip. for sewage disposal plant, EL DORADO, KAN. City, H. E. McMillen, city mgr., El Dorado, Kan. CD 7/5, under LB.

TEXAS—State Hy. Comn., Austin,

H. B. Zachry Co., P. O. Box 10188, San Antonio, Tex., CA, **$516,926.** flex. base, two crs. surf. tr. 6.991 mi. Hy. U. S. 281 Proj. F 437 (7) Jack Co. Bids July 17, awarded July 24. CD 7/20, under LB.

▲† **Burnett Constr. Co.,** Box 336, Corpus Christi, Tex. LB **$1,383,400,** est. $345,500. aircraft maintenance hangar, with lean-to, Naval Aux. Air Station, NOy 91222, KINGSVILLE, TEX. Officer in Charge of Constr., Naval Air Advance Training Command, Naval Air Station, Corpus Christi, Tex. Bids July 17. CD 6/28.

BUILDINGS—LB & CA

J. E. Dunn Constr. Co., 929 Holmes St., Kansas City, Mo. CA **$497,942.** general constr. two 3 story, brick dormitories, KANSAS CITY, MO. Rockhurst College, 5225 Troost Ave., Kansas City, Mo. Bids July 25. CD 7/25.

Platt Constr. Co., 8147 Delmar Blvd., University City 24, Mo. CA Est. **$450,000.** forty-one brick, concrete RESIDENCES in Brenda Terrace Subdivision on Brenda Dr., NORMANDY (ST. LOUIS 21 P.O.), MO. Harry Shapiro Jr., Realty & Investment Co., 822 Chestnut St., St. Louis 1, Mo.

J. J. Kelley Realty & Bldg. Co., 6101 Heege Rd., St. Louis 24, MO Owner Builds. **$500,000.** 70 RESIDENCES in Bella Hills subdivision off Shepley Dr., 2 blocks north of Bellefontaine and Chambers Rds., ST. LOUIS, MO.

J. S. Alberici Constr. Co., Inc., 1550 Irving Ave., St. Louis 14, Mo. CA Est. **$500,000.** 1st sect. 1 story, bsmnt., brick, concrete EDUCATIONAL WING for youth center proj., UNIVERSITY CITY (ST. LOUIS 24 P.O.) MO. Young Israel Youth Center, 7800 Groby Rd., University City, Mo. Adolph H. Felder, 1 Tamarack Court, Ladue 24, Mo., archt.

▲ **Robert E. McKee General Contractor, Inc.,** 1918 Texas St., El Paso, Tex. LB Est. **$2,633,000.** 165,000 sq. ft., structural steel, marble, granite OFFICE BLDG., DALLAS, TEX. Exchange Park Co., 6419 Maple Ave., Dallas, Tex. Bids July 18. CD 7/11.

▲ **James T. Taylor & Son Inc.,** P. O. Box 225, Fort Worth, Tex., CA, **$1,949,729,** WOMENS DORMITORY and MENS DORMITORY, FORT WORTH, TEX. Texas Christian University, c/o Dr. M. E. Sadler, pres., University Dr. Ft. Worth, Tex. Bids July 19, awarded July 20. CD 7/23, under LB.

C. A. Logeman, Box 2255, San Antonio 6, Tex., LB **$401,922** DELLVIEW SCHOOL, SAN ANTONIO, TEX. Northeast Independent School Dist., Lockhill-Selma Rd., San Antonio, Tex Bids July 19. CD 6/29.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Washington**—BA 8/24—Chelan County Public Utility Dist., Doneen Bldg., 510 tons structural steel deck framing; 3,000 tons or less new or used sheet steel piling and standard riveted connections for $200,-

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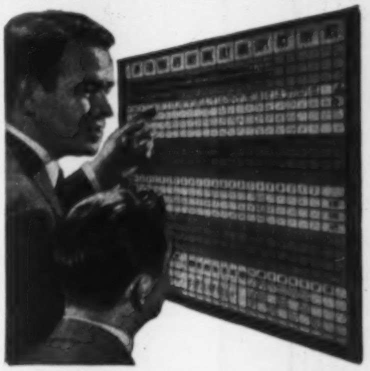

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000,000 Rocky Reach Dam, Wenatchee. Stone & Webster Eng. Corp., 49 Federal St., Boston, Mass., consult. engrs. CD 2/2/55.

BUILDINGS—SLC

▲ **Calif., Redono Beach**—SHOPPING CENTER—Brody Investment Co., c/o Jones & Emmons, 9825 Beverly Blvd., Los Angeles, and Victor Gruen, 135 S. Scheny Dr., Beverly Hills, archts., soon lets contract 230,000 sq. ft. South Bay shopping center, $2,000,000. CD 2/18/55.

HEAVY CONSTRUCTION—LB & CA

▲ **CALIFORNIA**—State Div. Hys., Sacramento,
Gordon H. Ball & Erickson, Phillips & Weisberg, 300 Camille Ave., Danville, Calif., CA, **$2,528,993** 4.5 mi. Watwater Freeway, incl. 3 steel girder and 2 rein.-con. girder bridges and interchanges, ramps and frontage roads, Merced Co. Bids July 18, awarded July 27. CD 7/23, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Sacramento,
Vinnell Co. Inc. & Vinnell Constructors, 1145 Westminster Ave., Alhambra, Calif., CA, **$4,893,086.** Golden State Freeway, 2.6 mi. in Los Angeles and Glendale, incl. 9 bridges and 7 retaining walls, Los Angeles Co. Bids July 6, awarded July 27. CD 7/11, under LB.

▲ **Piombo Constr. Co.,** P. O. Box 935, San Carlos, Calif., LB **$1,168,573** (6 bidders) 1,100 ft. earth-filled UVAS dam, 105 ft. high, and 2.6 mi. road near Gilroy and Morgan Hill, GILROY, CALIF. South Santa Clara Valley Water Conservation Dist., City Hall, Gilroy, Calif. CD 2/17/55.

BUILDINGS—LB & CA

▲ **H. S. Wright & Co.,** 414 Pontius St., Seattle, Wash., CA, **$1,000,000.** new entrance to Olympic HOTEL and Hotel addn., SEATTLE, WASH. Western Hotels Inc. 2 and Stewart Sts., Seattle 1, Wash. CD 1/27.

▲ **H. S. Wright & Co.,** 414 Pontius St., Seattle, Wash., CA, **$1,668,258,** general contract, 3 rein.-con. 201,000 sq. ft. Southwest Seattle SENIOR HIGH SCHOOL BUILDINGS, W. Thistle St. and 27 Ave. S. W., SEATTLE, WASH. School dist. No. 1, 815 4 Ave. N., Seattle, Wash. Bids July 24, awarded July 27. CD 7/27, under LB.

▲ **Merco Constr. Engineers Inc.,** 6052 W. Venice Blvd. Los Angeles, Calif., CA, **$1,539,550,** est. $1,500,000. Dominguez HIGH SCHOOL, COMPTON, CALIF. Compton High School Dist., 417 W. Olive St., Compton, Calif. Bids July 20. CD 7/12.

▲ **Harry Kelso, Inc.,** 3432 Via Operto, Newport Beach, Calif., CA, **$1,200,000,** 96 frame, stucco DWELLINGS, Tract 2568, SANTA ANA, CALIF. Fairview Terrace Homes, 620 Vance St., Santa Ana, Calif.

CANADA

BUILDINGS—BA

Que., Montreal—VAULT—BA 8/29—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., vault bldg. for National Film Board Plant, Cote de Liesse Rd. $800,000. Plans deposit $100. Ross, Patterson, Townsend & Fish, 4115 Sherbrooke St. W., archts.

▲ **B. C., Barnaby**—SCHOOL—BA 9/12—B. C. Government, Parliament Bldgs., Victoria, fireproof Girl's industrial school, Willingdon Ave. south of Grandview Highway, $1,000,000. Plans deposit $50. C. Campbell. Parliament Bldgs., Victoria. archts.

BUILDINGS—SLC

▲ **Alta., Calgary**—OFFICE—Canadian Fina Oil Ltd., Bamlett Bldg., soon lets contract 10½ story, penthouse, bsmnt., U-shaped, 123x150 ft., office bldg. Over $3,500,000. Rule, Wynn & Rule, 513 8 Ave. W., archts. CD 5/10.

HEAVY CONSTRUCTION—LB & CA

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria,
Dominion Bridge Co. Ltd., 2500 Boundary Rd., Burnaby, B. C., CA **$1,873,640.** fabricating, erecting steel superstructure Peace River Bridge, Mile 249 north of Prince George for. PGE Railway. Bids June 27. CD 7/6, under LB.

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria,
John A. MacIsaac Constr. Co. Ltd., Whitehorse, Y. T., LB **$1,049,300** (2 bidders) 11.85 mi. Northern Trans-Provincial Hy. west of Lammin Mills, Proj. No. 779. Bids July 20. CD 7/9.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto,
H. J. McFarland Constr. Co. Ltd., Box 559, Picton, Ont. LB **$1,139,643** (3 bidders) Contract 56-96, grading, culverts 7.1 mi. Kingston Dist. Bids July 25. CD 7/13.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,
Finley W. MacLachlan Constr. Co. Ltd., 195 Fairbank Ave., Toronto, Ont., CA **$651,445.** grading, culverts gran. base 4.7 mi. Trans-Canada Hy. No. 103, Toronto, Contract 56-49. CD 7/26, under LB.

▲ **Carter Constr. Co. Ltd.,** 419 Cherry St., Toronto, Ont., LB **$1,858,603** (7 bidders) reservoir and pumping station at Caledonia Rd. and Lawrence Ave. W. TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids July 23. CD 6/29.

▲ **Rayner-Atlas Ltd.,** 46 Eglinton Ave. E., Toronto, Ont., LB **$1,071,275** (3 bidders) 3,833 ft., 9 ft. 3 in. diam. concrete storm sewer in tunnel, Dufferin to Beechmount St. then north to Glengrove Ave., TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids July 16. CD 6/26.

▲ **S. D. Miller & Sons Ltd.,** 6999 Cote des Nieges Rd., Montreal, Que., LB **$1,877,872** collector sewer and outfall for municipalities of Montreal South, Jacques Cartier and Preville, MONTREAL, QUEBEC. St. Lawrence Seaway Auth. No. 2 Temporary Bldg., Ottawa, Ont. Bids July 24. CD 7/2.

BUILDINGS—LB & CA

▲ **John Laing & Son (Canada) Ltd.,** 640 W. Hastings St., Vancouver, B. C., CA **$1,500,000.** WAREHOUSE and MACHINE ROOM, NEWSPAPER PLANT, Wiggins Ave., BURNABY, B. C. Sidney Roofing & Paper Co. Ltd., Granville Island, Vancouver, B. C. CD 1/18. Awarded July 26.

Malcolm Constr. Co. Ltd., 554 Pembina Hy., Winnipeg, Man., LB **$662,977.** OFFICER'S MESS and 2 OFFICERS QUARTERS, Shilo Army Camp, SHILO, MAN. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont.

▲ **Montrose Builders, Inc.,** 5174 Cote des Neiges Rd., Montreal, Que., Owner Builds, **$1,000,000.** 32-bungalow HOUSING program, Beaudet, Nantel and Dore Sts., St. Laurent, MONTREAL, QUE. Harry Stilman, 2757 Maplewood Ave., Montreal, Que., archt.

▲ **Wentworth Development Corp.,** 282 Ontario St. W., Montreal, Que., Owner Builds. **$1,350,000.** 75 BUNGALOWS, on new streets in Cote St. Luc suburban area, MONTREAL, QUE. Gabriel Jarry, 12385 Jeanne Mance St., Montreal, Que., archt.

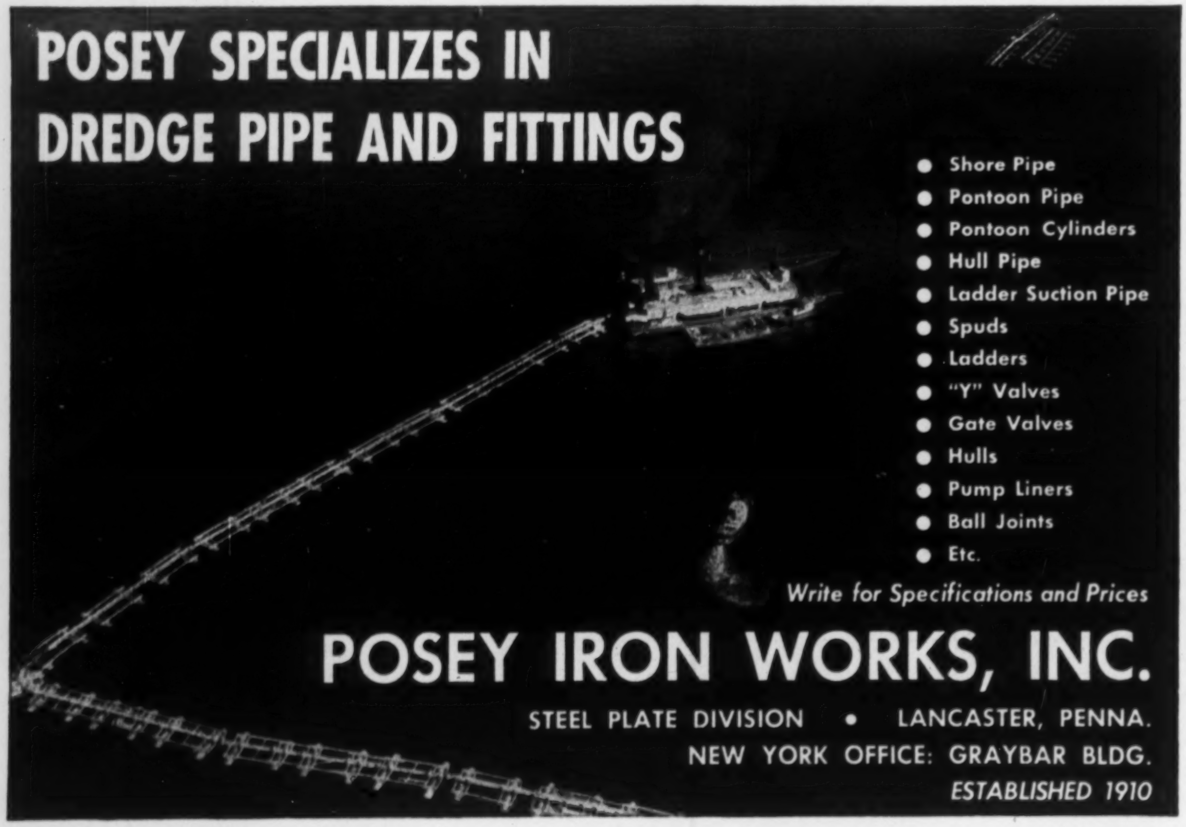
LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ **VENEZUELA**—Ministry of P. Wks., Caracas;
Ingenieros Venezolanos, C.A., Centro Profesional del Este, Pios 8, Caracas, D.F., Venezuela, and **Constructora Acero, S.A.** Edificio Polar, Piso 12, Plaaz Venezuela, Caracas, D.F. Benezuela, CA **$6,268,691** 6-mi. stretch of hy. incl. cloverleaf near La Encrucijada, 60 mi. west of Caracas; CA **$6,882,723,** 5.8 mi. adjoining section of hy. incl. cloverleafs at Tapatapa and Palo Negro, Pan-American Hy. CD 7/26, under LB.

BUILDINGS—LB & CA

▲ **Ministry of P. Wks.,** Caracas, D.F., Venezuela, cancelled contract, 600-bed wing for Maracaibo General HOSPITAL, MARACAIBO, VENEZUELA. CA **$5,458,-486.** CD 7/30, under CA.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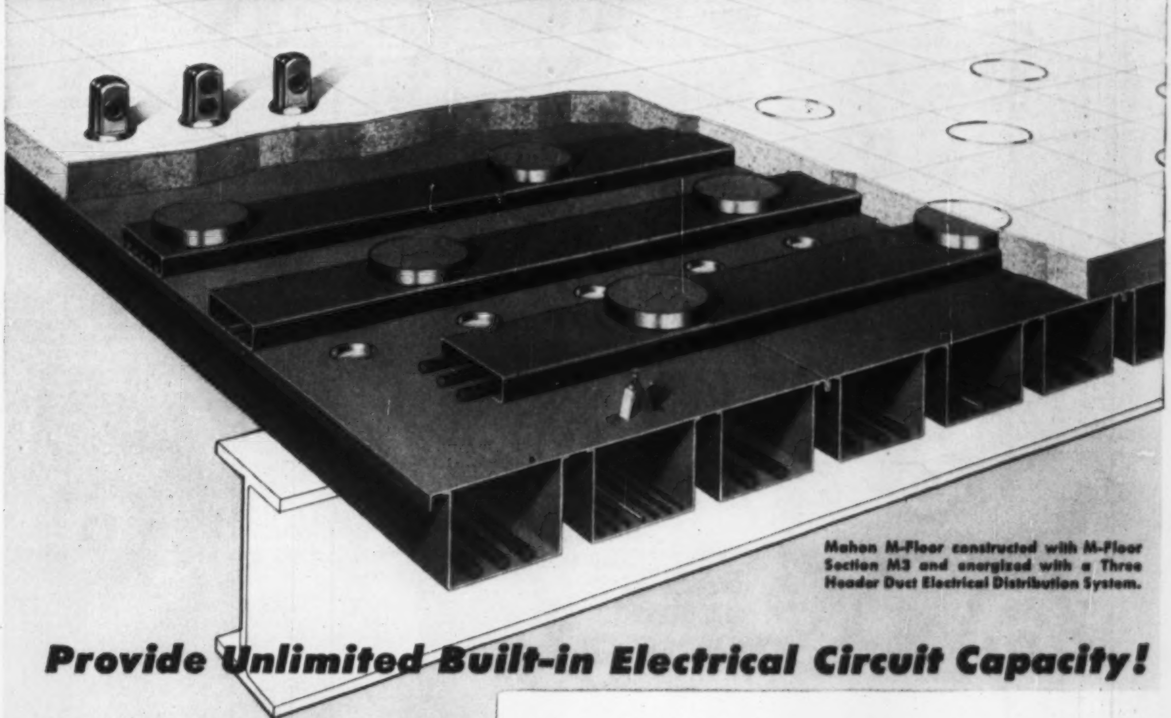

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Bids—Low Bids—Contracts—Third Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
August 22 Maine
STREETS AND ROADS
August 14, 21 Massachusetts

† **Vermont**—BA On Or About 9/12—U. S. Eng., 111 E. 16 St., New York 3, N. Y., modification of Wrightsville Dam, Wrightsville, CIVENG-30-075-57-7. $500,000-$1,000,000.

BUILDINGS—BA

▲ Mass., **Medfield** — ADMISSION-TREATMENT — BA 8/17—State, Dpt. Mental Health, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, M-716, admission-treatment bldg., State Hospital, $2,000,000. Plans deposit $100, refundable. Leland, Larsen, Bradley & Hibbard, 711 Boylston St., Boston, archts.

▲ Conn., **Winsted**—SCHOOL—BA 8/23—Regional School Dist. No. 7, Rural Supt., 384 Main St., Agricultural bldg. for Regional High School No. 7, $1,600,000. Plans deposit $75. Louis E. Jallade, 597 5 Ave., New York, N. Y., archt. Fraoli, Blum & Yesselman, 25 W. 45 St., New York, N. Y., structural engrs. CD 7/25.

Conn., **North Haven**—SCHOOL—BA 8/30—Town of North Haven, Bd. Educ., Town Hall, Fitch St. School Montowese section, $700,000. Carl J. Malmfeldt & Assoc., 36 Pearl St., Hartford, archts. Hubbard, Lawless & Blakely, 110 Whitney Ave., New Haven, structural engrs. CD 3/16.

HEAVY CONSTRUCTION—LB & CA

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Mount Vernon Bridge Co., Mount Vernon, O. LB **$2,195,895**. Contr. No. 2, furnish, erect structures steel bridge at Holyoke and South Hadley. Bids July 31. CD 7/3.

Harry Maring, Jr., Inc., 536 Lindley St., Bridgeport, Conn., LB **$695,000**. Contr. 2, incineration plant, Bostwick Ave., BRIDGEPORT, CONN. City, City Hall, Bridgeport, Conn. Bids July 25. CD 7/11.

Associated Constr. Co., 1010 Wethersfield Ave., Hartford, Conn., CA, **$988,925**. Contr. 1956, town incinerator, North of New Britain Ave., WEST HARTFORD, CONN. Town, Town Hall, West Hartford, Conn. Bids July 11. CD 7/18, under LB.

BUILDINGS—LB & CA

Canter Constr. Co., 185 Corey Rd., Brookline, Mass. CA Approx. **$700,000**. 6 story, bsmnt., 50 unit, APARTMENT, Sewell House, BROOKLINE, MASS. Sam Stern, c/o Edward F. Heenan, archt., 75 Tremont St., Boston, Mass.

▲ **Town, School Bldg. Comn.**, c/o Supt. Schools, Wareham, Mass., rejected bids July 2, high school, Pilgrim Memorial School, Marion Rd., WAREHAM, MASS. LB **$1,284,811**. CD 7/5, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
August 14 Maryland, New Jersey
STREETS AND ROADS
August 16 New Jersey August 31 Pennsylvania

BUILDINGS—SLC

Md., **Baltimore**—GARAGE—Lexington Theatre Corp., Park Ave. and Clay Sts., Zone 1, soon lets contract 13 level concrete, steel, brick parking garage $700,000-$800,000. Taylor & Fisher, 130 W. Hamilton St., Baltimore, Zone 1, engrs.-archts. CD 7/24, under LB.

HEAVY CONSTRUCTION—LB & CA

▲ **James McHugh Co.**, 6449 South Park Ave., Chicago 37, Ill., CA, **$6,533,000** sewage treatment plant addn., WASH., D. C. D. C. Govt., Dpt. Sanitary Eng., 499 Pa. Ave. N. W., Wash., D. C. Bids May 17. CD 5/21, under LB.

BUILDINGS—LB & CA

▲ **Laurel Hill Homes**, c/o John W. Burton Assoc., archts., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. **$1,500,000**. 90 HOUSES on tract at 40 Ave. and 65 Place, WOODSIDE, N. Y.

Becker & Hofstadter, 62 Benchley Rd., Great Neck, N. Y. Owner Builds. **$750,000**. 5 story, 45,500 sq. ft. OFFICE, 61 Hudson St. and Main St., HACKENSACK, N. J. Walter G. Bartles, Inc., 240 Main St., Hackensack, N. J., archt.

▲ **Fred R. Brunetti**, 311 S. Washington Ave., Bergenfield, N. J. Owner Builds. **$1,000,000**. 40 HOMES, Brentwood Terrace on Pascack Rd. north of Hillsdale Ave., HILLSDALE, N. J. Leonard Feinen, 320 Lincoln Ave., Hasbrouck Heights, N. J., archt.

▲ **Philip J. Levin**, 104 W. 4 St., Plainfield, N. J. Owner Builds. **$1,000,000**. Airport Plaza SHOPPING CENTER, Walling Airport, intersection of Hy. 36 and Middle Rd., RARITAN, N. J. Harold D. Glucksman, 850 Broad St., Newark 2, N. J., archt.

▲ **John McShain, Inc.**, 1501 N. Arlington Ridge Rd., Arlington, Va. CA **$8,247,000**. general constr. INSTITUTION for Defective Delinquents, WILKES-BARRE, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Grand total $11,110,000. CD 6/15, under LB;

Gus Weinberger Co., Old Forge, Pa. CA **$764,000**. heating works (Wilkes-Barre, Pa.);

Daniel J. Keating Co., 3917 Baring St., Phila., Pa. CA **$945,000**. plumbing work (Wilkes-Barre, Pa.);

Ross Electrical Constr. Co., Inc., 106 Fairmount Ave., Phila., Pa. CA **$1,154,000**. electrical work (Wilkes-Barre, Pa.)

▲ **Consolidated Engineering Co.**, 20 E. Franklin St., Baltimore 2, Md. LB **$1,577,500**. 9 story, brick, steel concrete medical DORMITORY in Broadway Area adjacent to hospital, BALTIMORE, MD. Johns Hopkins University, Charles and 34 Sts., Baltimore 18, Md. Bids July 26. CD 7/17.

▲ **J. D. Hedin Constr. Co.**, 2900 Newton St. N. E., Wash., D. C. CA **$1,977,000**. (10 bidders) Edward W. Broome JUNIOR HIGH SCHOOL, ROCKVILLE, MD. Montgomery Co. Bd. Educ., Rockville, Md. CD 7/30, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
August 9 Florida August 10 Kentucky
August 15 Virginia
STREETS AND ROADS
August 9, 23 Florida August 10 Kentucky
August 15 Virginia

BUILDINGS—BA

Tenn., **Dayton**—HOSPITAL—BA 8/15—Rhea Co., fireproof, masonry, native stone, brick 40-bed Rhea Co. Memorial Hospital. $600,000. CD 10/21.

HEAVY CONSTRUCTION—LB & CA

† **P. Wks. Office, Fifth Naval Dist.**, U. S. Naval Base, Norfolk 11, Va., rejected bids June 28, supply facility, supply warehouse, Naval Air Station, NBy-631, Spec. 631/56, OCEANA, VA. LB **$747,477**. CD 7/5, under LB.

GEORGIA—State Hy. Dpt., No. 2 Capitol Sq., Atlanta,

Ga.—H. M. Pafford, Jr., P.O. Box 145, Waycross, Ga., LB **$934,020**. (8 bidders) 3.069 mi. F-002-1 (7), Charlton Co.;

Ga.—**Hugh Steele Constr. Co.**, P.O. Box 398, Centre, Ala., LB **$1,038,664**, (7 bidders) 10.797 mi. F-002-4 (4) and F-004-2 (2), Bibb and Jones Counties;

Ga.—**W. L. Robinson Constr. Co.**, 1224 W. Rugby Ave., College Park, Ga., LB **$291,493**. (11 bidders) 3.516 mi. F-085-1 (2) Brantley Co.;

Ga.—**Holland Constr. Co.**, P.O. Box 215, Mt. Vernon, Ga., LB **$195,956**, 10.849 mi. S 0550 (4), Atkinson, Coffee and Irwin Counties;

Ga.—**Moses Gordon Lumber Co.**, P.O. Box 179, Commerce, Ga., LB **$138,422** (8 bidders) 5.123 mi. S 0732 (3), Taliaferro Co.;

Ga.—**Lothbridge Bros.**, P.O. Box 81, Gainesville, Ga., LB **$806,567** (4 bidders) 11.491 mi. S-0823 (1), Floyd and Gordon Counties;

Ga.—**Bleckley Constr. Co., Inc.**, Cochran, Ga., LB **$131,697** (7 bidders) 10.837 mi. S-1107 (1) Burke and Jefferson Counties;

Ga.—**Coffee Constr. Co.**, P.O. Box 329, Eastman, Ga., LB **$144,791**. (5 bidders) 6.417 mi. S-1029 (2) Brooks and Colquitt Counties;

Ga.—**Sowega Farm Machinery Co.**, Edison, Ga., LB **$140,577** (7 bidders) 5.798 mi. S-1703 (1) Randolph Co.;

Ga.—**Barber Contg. Co.**, P.O. Box 270, Moultrie, Ga., LB **$431,000** (5 bidders) 11.078 mi. S-1714 (1) Meriwether Co.;

Ga.—**C. W. Matthews Contg. Co. Inc.**, P.O. Box 195, Marietta, Ga., LB **$151,031** (6 bidders) 2.3 mi. SAP 1515 (2) Cobb Co. Bids July 27.

† **Hooper Constr. Co.**, 1150 N. W. 57 Ave., Miami, Fla., LB **$769,372**, Alt. 1 add **$192,333**, Alt. 2 add **$316,415**, Levee 5, Broward and Palm Beach Co. line from west side U. S. Hy. 27 west to Miami Canal, ENG-08-123-57-1, FLORIDA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids July 26.

▲ **H. J. High Constr. Co.**, 1015 W. Amelia Ave., Orlando, Fla., CA, **$1,205,216**, B.O.Q. Naval Air Station, NOy 2461, Spec. 49133, Cecil Field, JACKSONVILLE, FLA. P. Wks. Office, Sixth Naval Dist., Charleston, S. C. Bids June 28. CD 7/5, under LB.

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

La.—U. S. Steel Corp., Box 116, Birmingham, Ala. LB **$2,134,181**. (2 bidders) structural steel superstructure for elevated hy. structure, 0.55 mi. New Orleans Approach to Mississippi River Bridge (Pontchartrain Expressway), Rte. LA 3019, S.P. 283-08-09, FAP No. U 409 (11), Orleans Parish; LB **$1,613,574**. (2 bidders) structural steel superstructure for elevated hy. structure 0.49 mi. New Orleans approach to Mississippi River Bridge (Pontchartrain Expressway), Rte. LA 3019, S.P. 283-08-10 Contr. No. 1; F. A. Proj. FU 409 (10), Orleans Parish;

La.—**Coastal Contractors, Inc.**, Box 911, Baton Rouge, La. LB **$169,610**. (2 bidders) steel pontoon bridge concrete slab approach spans, 0.036 mi. Grand Bayou Bridge (Paincourtville Pierre Pass Hy.), State Rte. LA 70, S.P.232-01-25, Assumption Parish. Bids July 25. CD 7/17.

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

La.—**T. L. James & Co., Inc.**, Ruston, La. LB **$1,049,692**. (2 bidders) wid'n., c. conc. 11.723 mi., Houma-Raceland Hy., State Rte. U. S. 90, S.P. 5-05-26 and 5-06-17, Terrebonne and Lafourche Parishes; LB **$745,795**. c.conc. 13.894 mi. Quitman-Ruston Hy., State Rte. 167, S.P. 825-06-08 and 23-09-04, Jackson and Lincoln Counties; LB **$893,719**. base wid'n., 20.889 mi. Amite-Miss. State Line Hy. Rte. 51, S.P. 17-05-10 and 17-06-10, Tangipahoa Parish;

La.—**J. G. Madden**, Minden, La. LB **$148,487**. (2 bidders) shaping roadway 8.17 mi., Grappes Bluff Coushatta Hy., Rte. LA 480, S.P. 305-03-05, Red River Parish;

La.—**Continental Contractors, Inc.**, Baton Rouge, La. LB **$396,853**. (2 bidders) wid'n. existing c.conc. 6.416 mi., Lafayette-Breaux Bridge, Bridge Hy. State Rte. 94, S.P. 80-03-09 and 8-04-06, Lafayette and St. Marin Parishes;

La.—**W. R. Aldrich & Co.**, 2493 Baywood Ave., Baton Rouge, La. LB **$163,132**. (2 bidders) c. conc. Airline Hy. (Turning Lanes) La. U. S. Rte. 61-65, S.P. 7-09-27, East Baton Rouge Parish;

La.—cancelled bids to have been opened July 25, shaping roadway 5.812 mi. Simmsboro-Grambling Hy., State Rte. 563, 3004, S.P. 316-04-03, Lincoln Parish; shaping roadway 7.192 mi. Oak Ridge-Man School Rte. LA 134, S.P. 161-03-03 and 151-04-04, Morehouse and Richland Parishes. CD 7/17 and 7/20.

▲ **E. H. Reeder Constr. Co., Inc.**, 2128 Hawes Ave., Dallas, Tex., LB **$1,068,888**. (3 bidders) installation of Lucas outfall sewer main and force main, SHREVEPORT, LA. City, City Hall, Shreveport, La.;

Sandel & Lastrapes, Box 6175, Shreveport, La. LB **$245,375**. (3 bidders) sewerage imprvs., consisting of outfall pumping station, work appurtenant on Sewerage Contr. No. 6 (Shreveport, La.).

▲ **Three A Builders, Inc.**, 1270 Maxwell St., Evansville, Ind. LB **$733,840**. (6 bidders) Contr. 5, sanitary sewer extens., HOPKINSVILLE, KY. City, Sewage Comn., 112 E. Sixth St., Hopkinsville, Ky. Bids July 25, CD 7/16;

Clark Constr. Co., 1919 Parish Ave., Owensboro, Ky. LB **$385,125**. (5 bidders) Contr. 7, sewage treatment plant addns. (Hopkinsville, Ky.);

Thomason & Reece, P. O. Box 733, Clarksville, Tenn. LB **$84,360**. Contr. 6, sewage pump station. (Hopkinsville, Ky.).

Sullivan & Cozzart, 822 W. Kentucky St., Louisville, Ky. CA **$742,000**. addns., alterations to Lee Terminal, Municipal Airport, LOUISVILLE, KY. Louisville & Jefferson County Air Bd., Standiford Field, Louisville, Ky. Bids June 20, awarded July 26. CD 6/26, under LB.

BUILDINGS—LB & CA

▲ **J. A. Jones Constr. Co.**, 209 W. 4 St., Charlotte, N. C. LB **$13,794,700**. construct and finance, 1,216 housing units, (Capehart), FORT BRAGG, N. C. U. S. Eng., 308 Customhouse, Wilmington, N. C. CD 6/14.

Farnsworth & Chambers Co., Inc., Box 332, New Orleans, La. LB **$842,000**. (6 bidders) PARISH development, MORGAN CITY, LA. Sacred Heart of Jesus Parish, Morgan City, La. Dibolls-Kessels & Assn. 637 Pere Antoine Alley, New Orleans, La., archts.

MIDDLE WEST

BUILDINGS—BA

Ill., **Deerfield**—SCHOOL, etc.—BA 8/14—Holy Cross Church, 724 Elder St., school, church and convent, $700,000. Barry & Kay, 53 W. Jackson Blvd., Chicago, archts.

Ind., Gary—SCHOOL—BA 8/14—School City of Gary, 524 Garfield St., 1 and 2 story, brick, block elementary school, 21 Ave. and Iowa St. $650,000. Beine, Hall & Curran, 607 Broadway, archts. CD 4/4.

Ind., Gary—SCHOOL—BA 8/14—School, City of Gary, 524 Garfield St., 1 story, brick Garfield Grade School, 23rd and Garfield, $600,000. David Katz, 355 Arthur St., archt.

▲ **Ind., Whiting**—RESEARCH AND OFFICE—BA 8/16—Standard Oil Co. of Ind., 119 and Front Sts., technical office bldg., 2 research bldgs., sewers, 129 and Indianapolis Blvd. $4,000,000. Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Ill., archts. CD 4/17.

Wis., Cudalup—SCHOOL—BA 8/29—Bd. Educ., Cudahy Lake School, $600,000. Plans deposit $50. Grassold, Johnson & Assocs., 734 N. Jefferson St., Milwaukee, archts.

▲ **O., Reading**—SCHOOL—BA 8/31—Bd. Educ., Bonnell St., 1 and 2 story elementary school east side and south side of city. Plans deposit $25. New bid date. Sullivan-Isaacs-Sullivan, 1800 Reading St., engrs. CD 5/36.

BUILDINGS—SLC

† **W. A. Sheets & Sons Constr. Co.**, 1057 Osage St., Fort Wayne, Ind., CA **$677,683**, 2 story, cement block administrative headquarters, Baer Field, FORT WAYNE.

(Continued on page 128)

Call or write your Factory Trained Clipper Representative for a FREE DEMONSTRATION of a Clipper Concrete Saw. See for yourself how Clipper's Simple design, Rugged construction and Dependable performance will mean faster cutting on all concrete and asphalt jobs.

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☐ Send information on CLIPPER GREEN-CON ABRASIVE Blades FOR Green Concrete Sawing. I'd also like to know about:
☐ DIAMOND Blades for Concrete Sawing.
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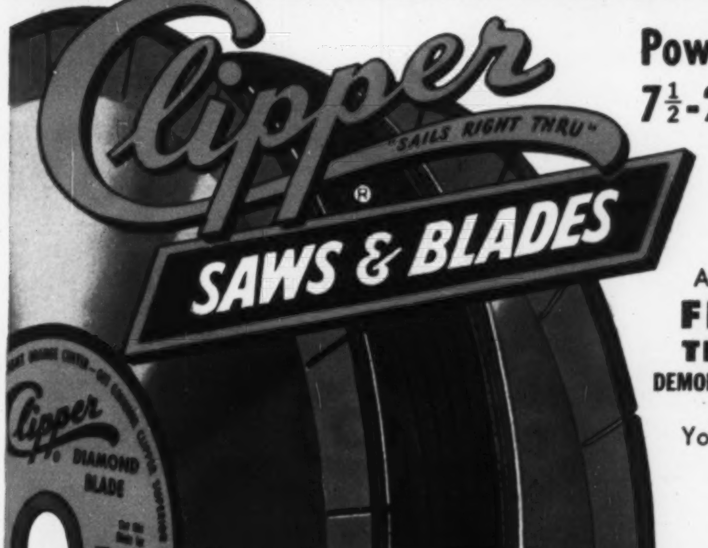

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TRIAL
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Your Job

- Clipper offers the only complete range of specifications in DIAMOND and GREEN-CON ABRASIVE BLADES for cutting asphalt and green or cured concrete with ANY aggregate . . . and ONLY from Clipper can you get FACTORY TRAINED REPRESENTATIVES to help you. For FIRST QUALITY Products and FIRST QUALITY Service call Clipper . . .

USE GENUINE CLIPPER BLADES

Let your Factory Trained Representative help you select the right Clipper Blade for your job.

● **GREEN-CON ABRASIVE BLADES** give you savings as high as 80% with Clipper's New Reinforced GreenCon Abrasive Blades. A range of specifications for all types of limestone aggregates, as well as harder aggregates when mixed with limestone. GreenCons are available to cut 3/16" - 1/4" and 3/8" wide joints.

● **DIAMOND BLADES** for any job — any aggregate — every saw! Choose your Clipper Diamond Blade from a wide variety of specifications to cut green or old concrete with outstanding speed and economy. **IF YOU DON'T KNOW DIAMONDS, KNOW YOUR MANUFACTURER.**

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Clipper
"SAILS RIGHT THRU"

SOLD DIRECT by Factory Trained Representatives— Factory Branches in Principal Cities—Coast to Coast.
GENERAL OFFICES AND FACTORY • KANSAS CITY 8, MISSOURI

(Continued from page 126)

IND. Air National Guard, U. S. Property & Fiscal Officer, State House, Indianapolis, Ind. CD 3/22.

HEAVY CONSTRUCTION—LB & CA

† **Becker Constr. Co.**, 7701 W. Bluemound Rd., Milwaukee, Wis., LB **$929,177**, technical training bldg., General Mitchell Field, Serial No. ENG-11-032-56-95, MILWAUKEE, WIS. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. Bids July 24. CD 7/2.

MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

A. Lindberg & Sons and Thornton Constr. Co., 1028 Ethel Ave., Hancock, Mich. CA **$904,999**, est. $1,060,000 aggregate base course prime and double 8.958 mi. F66-22 C3 R, F 66-22 (F 193 14), Ontonagon Co. CD 7/26, under LB.

Spence Bros., 417 McCoskey St., Saginaw, Mich. LB **$758,400**. general constr. superstructure, tri-level parking facility, Baum and Federal Sts., C-584, SAGINAW, MICH. City, City Hall, Saginaw, Mich. Bids July 10. CD 6/25.

BUILDINGS—LB & CA

▲ **Jos. Bucheit & Sons Co.**, 4040 Simon St., Youngstown, O. CA Total est. **$2,500,000**. general constr. three 133,000 sq. ft. FACTORY BLDGS. addns., remodel present PLANT, SALEM, O. The Eljer Co., Salem, O. CD 5/11.

▲ **Hewitt-Robins, Inc.**, 666 Glenbrook Rd., Stamford, Conn. CA Approx. **$1,000,000**. 7;100 ft. conveyor system at ore screening and sintering PLANT, YOUNGSTOWN, O. U. S. Steel Corp., 912 Salt Springs St., Youngstown, O. Awarded July 25.

▲ **Sheridan Homes**, c/o Ken Kountz Co., 3937 N. Arlington St., Indianapolis, Ind. Owner Builds, **$4,000,000**. 250 or more HOMES, N. Arlington and E. 42 Sts., INDIANAPOLIS, IND.

J. L. Simmons Co., 427 E. Monroe St., Springfield, Ill., LB **$734,870**. (1 bidder) combination bid on 4 ARMORIES at Effingham, Freeport, Litchfield and West Frankfort, ILLINOIS State, 406 State Capitol, Springfield, Ill. Bids July 17.

Fred Berglund & Sons, 8410 S. Chicago Ave., Chicago, Ill., **$700,000**. 4 story, 120,000 sq. ft. Fertilizer PLANT, 4200 S. Ashland St., CHICAGO, ILL. Wilson & Co., Inc., 30 E. Randolph St., Chicago, Zone 1, Ill.

▲ **Ellington Miller Co.**, 25 E. Jackson St., Chicago 4, Ill., CA, **$1,000,000**. RAILROAD TRANSFER HOUSE, at 47 St. at Cornith Yard, CHICAGO, ILL. The Atchison, Topeka & Santa Fe Ry. Sys., T. A. Blair, ch. engr., 80 E. Jackson St., Chicago 4, Ill.

▲ **Crane Constr. Co.**, 201 E. Walton St., Chicago, Ill., CA, **$3,625,000**. APARTMENT, Lakeshore Dr. and Division St., CHICAGO, ILL. Owner, c/o Hausner & Macsai, archts., 104 S. Michigan St., Chicago 3, Ill. Bids Mar. 23. CD 4/10, under LB.

▲ **Bd. Educ., Grosse Pointe Pub. Schools**, 390 St. Clair Ave., Grosse Pointe 30, Mich., rejected bids July 2, Chalfonte Junior High Schools, Grosse Pointe Farms, GROSSE POINTE, MICH. LB **$2,523,607**. Will re-advertise. CD 7/11, under LB.

Miller-Davis Co., 1029 Portage St., Kalamazoo, Mich. CA **$918,500**. general constr. LIBRARY, CLASSROOM, Western Michigan College of Education, KALAMAZOO, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. Bids June 28, awarded July 17. CD 8/1, under LB.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
September 12 Texas

▲ **Okla., Tulsa**—BA 8/28—City, City Hall, 11 m.g.d. sewage treatment plant, Contr. SA-55-6, $2,000,000. Plans deposit $25, Fell & Wheeler, 6339 E. Tecumseh St., engrs. CD 11/2.

▲ **Tex., Fort Worth**—BA 8/30—City, c/o Dr. Jack Garrison, mayor, City Hall, Contract 1, sewage treatment plant unit; Contr. 2, air blower units; Contract 3, storm drain pump units; Contr. No. 4, raw sewage and return sludge units, Village Creek Sewage Treatment Plant. $1,100,000. Plans deposit $50. Freese & Nichols, 407 Danciger Bldg., Ft. Worth engrs. CD 7/31, under LB.

▲ **Tex., Houston**—WHARF—BA 8/30—Port Comn, c/o Wharf No. 3, 600 ft. open steel, concrete type wharf $1,150,000. Robert J. Cummins, Bankers Mtg. Bldg. engr. CD 1/5/56.

▲ **TEXAS**—BA 9/12—Texas State Hy. Dpt., Austin, **Nueces Co.**—Contract No. II, constr. Corpus Christi Ship Channel Bridge, U. S. Hy. 181, incl. 17 bents and 2 piers composing the substructure units for the steel spans, minor work preparing the right-of-way. CD 11/28.

BUILDINGS—BA

Kan., Turner—SCHOOL—BA 8/14—Bd. Educ., Turner, high school addn. $750,000. J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., archt. CD 12/30.

Iowa, Durant—SCHOOL—BA 8/21—Comm. School Dist. of Durant, addn. to high and grade school bldg. $400,000. Stanley Eng. Co., Hershey Bldg., Muscatine engr. CD 3/12.

▲ **Iowa, Des Moines**—TECHNICAL SCHOOL—BA 9/11 Bd. Educ., 629 3 St., convert building into technical school, $2,400,000. Wetherell & Harrison, 506 Shops Bldg., archts. CD 5/18.

HEAVY CONSTRUCTION—LB & CA

▲† **Texas Bitulithic Co.**, 2121 Irving Blvd., Dallas, Tex. LB **$1,247,306**. Sch. 1, runway exten. and access road, Carswell Air Force Base, ENG-41-443-56-87, FORT WORTH, TEX. U. S. Eng., P.O. Box 1600, Fort Worth, Tex. CD 6/22.

▲ **Winston Bros.**, Monrovia, Calif. and **Green Constr. Co.**, 321 Locust St., Des Moines, Iowa. CA **$5,000,000**. 1st phase, constr. Cochrane Dam, 870 ft. long, 103 ft. high, concrete work for power house, 8 mi. northeast of Great Falls on Missouri River, Cascade Co., MONTANA. Montana Power Co., 101 Central Ave., Great Falls, Mont. Bechtel Corp., 612 S. Flower St., Los Angeles, Calif., engrs. CD 4/26.

COLORADO—State Hy. Dpt., 4201 E. Arkansas St., Denver,

Lowdermilk Brothers, 1950 W. Dartmouth St., Denver, Colo., CA **$812,688**, est.. $622,000. plant mix asph. surf. 3.968 mi. Colo. Proj. BF 019-2 (7) San Juan Co. Bids July 25. CD 7/16.

▲ **NEW MEXICO**—State Hy. Dpt., State Hy. Bldg., Cerrillos Rs., Santa Fe,

N. M.—**Brown Contg. Co.**, 3525 Fourth Ave., N. W., Albuquerque, N. M. CA **$593,453**. Alamogordo-Tularosa, Proj. F 020-1 (4), Otero Co.; CA $430,502. Variadero-Gate Line, Proj. S 1421 (4), San Miguel Co.

N. M.—**Wylie Brothers Contg. Co.**, 6511 Domingo R. N. E., Albuquerque, N. M. CA **$705,214**. Grenville-West, Proj. F 046-1 (1), Union Co.;

N. M.—**Mesilla Valley Constr. Co.**, Las Cruces, N. M. CA **$211,760**. Jct. US 70-Red Rock, Proj. S 1102 (1) and S. P. S 1102 (200), Grant and Hidalgo Counties. Grand total $1,940,929. Bids July 27. CD 7/19.

BUILDINGS—LB & CA

▲ **Thomas Constr. Co.**, 901 Faraon St., St. Joseph, Mo., LB **$1,395,288** general contract, HIGH SCHOOL and JUNIOR COLLEGE, FORT DODGE, IOWA. Bd. Educ., Fort Dodge, Iowa. Bids July 19. CD 6/21. **Young Plumbing & Heating Co.**, 400 W. Park St., Waterloo, Iowa. LB **$424,500**. mechanical contract (Fort Dodge, Iowa).

▲ **James H. Stanton Constr. Co.**, 1012 Baltimore Ave., Kansas City, Mo. Owner Builds. Total est. **$52,000,000**. 2,500 HOME sites on 800 acres; development to be called River Fores Homes, NORTH KANSAS CITY, Mo. CD 7/19.

Busboom & Rauh, 6910 Forest Park Dr., Dallas, Tex., LB **$799,630**. 97-unit Holiday Inn Hotel, incl. swimming pool and 2 story COMMERCIAL BLDG., DALLAS, TEX. The Tex Mex Corp., 833 Fidelity Union Bldg., Dallas, Tex. Bids July 20 CD 7/19.

▲† **Rob. E. McKee General Contractor, Inc.**, Box 651, Albuquerque, N. M. LB **$1,235,370**. 80,000 sq. ft. A BUILDING, ENG-292-56-25, ALBUQUERQUE, N. M. Atomic Energy Comn., 4001 Gibson Bldg. S. E., Albuquerque, N. M. Bids July 19. CD 7/6.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
August 14 Washington August 29, September 5 California
STREETS AND ROADS
August 14 Washington August 22, 23, 29, 30 California

BUILDINGS—BA

▲ **Calif., Los Angeles**—HEADQUARTERS—BA 9/10—Los Angeles Dpt. Water & Power, 311 S. Spring St., East Valley Dist. Headquarters, 12730 Saticoy St. $1,000,000. Plans deposit $100. S.B.S. Nelson, engr.

HEAVY CONSTRUCTION—LB & CA

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento,

Fredericksen & Kasler, 212 13 St., Sacramento, Calif., CA, **$836,656**, grading, surf. 2.8 mi. U.S. 99 incl. 2 bridges, 1 pumping plant, Tulare Co. Bids July 11, awarded July 25. CD 7/19, under LB.

▲† **Frederickson & Watson Constr. Co.**, 873 81 Ave., Oakland, Calif., CA, **$1,957,777**. runway extens., Naval Air Station, NOy 91695, Spec. 50107, MOFFETT FIELD, CALIF. Dist. P. Wks. Office, Twelfth Naval Dist., San Bruno, Calif. Bids June 27. CD 7/3, under LB.

Lawrence Constr. Co. & Continental Constr. Co., 4671 24 St. Road, Sacramento, Calif., CA **$888,000**. double decking city owned parking lots, 7 and L Sts. and 11 and I Sts., SACRAMENTO, CALIF. City, City Hall, Sacramento, Calif. Bids July 5, awarded July 26. CD 6/18.

BUILDINGS—LB & CA

▲ **Marquardt Aircraft Co.**, Roy Marquardt, pres., 16555 Saticoy St., Van Nuys, Calif. Owner Builds. **$1,000,000**. 80,000 sq. ft. first unit RAM JET ENGINE PLANT, OGDEN, UTAH. Grix, Mueller, Plowgian, Washington Terrace, Utah, archts. CD 2/9.

Dorland Constr. Co., 1309 Jefferson St., Salt Lake City, Utah, CA, **$900,188**. HOSPITAL addn., PRICE, UTAH. Carbon Co. and City of Price, Price, Utah. Bids June 26.

▲ **Associated Refrigerating Engineers**, 2100 E. Vernon St., Los Angeles, Calif., CA, Est. **$1,000,000**. ICE MANUFACTURING PLANT, RIVERDALE, UTAH. Pacific Fruit Express Co., E. F. Gabler, 116 New Montgomery St., San Francisco, Calif. Bids June 18. CD 6/14.

▲ **Elle & Vitt Constr. Co.**, 390 Yellowstone Ave., Pocatello, Idaho, LB **$7,485,000**. construct and finance housing, Army Electronic Proving Ground, ENG-04-353-57-4, FORT HUACHUCA, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids July 31. CD 7/12.

The H. K. Ferguson Co., 411 W. 5 St., Los Angeles, Calif., CA **$900,000** design and construct FOUNDRY bldg., COLTON, CALIF. Griffen Wheel Co., 1280 Jefferson Lane, Colton, Calif.

▲ **Beckner Constr. Co.**, 2650 River Ave., South San Gabriel, Calif., LB **$1,034,500**. (12 bidders) JUNIOR HIGH SCHOOL, 124 St. and Mona Blvd., COMPTON, CALIF. Compton Union High School Dist., 417 W. Olive St., Compton, Calif. Bids July 20. CD 7/3.

Stoneson Development Co., 3150 20 Ave., San Francisco, Calif., Owner Builds. **$870,000**. 58 HOMES. Milbrae Meadows Subdivision, MILLBRAE, CALIF. CD 7/29/54.

Bollenback & Kelton, 5245 Zion St., San Diego, Calif. Owner Builds, **$803,500**. 78 frame, stucco DWELLINGS, Allied Gardens Traut No. 9, SAN DIEGO, CALIF.

Henderson Constr. Co., 33 Ritch St., San Francisco, Calif., LB **$759,000** (4 bidders) 1 story, 45,000 sq. ft., rein.-con. COUNTY OFFICE BLDG., SANTA ROSA, CALIF. Sonoma Co., Court House, Santa Rosa, Calif. Bids July 25. CD 6/25.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
August 16 British Columbia
STREETS AND ROADS
August 8 Ontario

BUILDINGS—SLC

▲ **Ont., Toronto**—OFFICE—Migros, Ont. Ltd. & Canadian Co. Ltd., c/o L. Forster, archt., 77 York St., soon lets contract 12 story, 2 bsmnt., rein.-con. office with garage for underground parking, University Ave. $8,000,000. Wallace, Carruthers & Assocs. Ltd., 92 Yorkville Ave., engrs. CD 2/27.

HEAVY CONSTRUCTION—LB & CA

▲ **Dutton-Williams Bros. Ltd.**, 2nd Floor Pacific Bldg., Calgary, Alta., CA **$1,500,000**. 45.3 mi. 10 in. gas pipe line from Etzikom to Medicine Hat, ALBERTA Midcon Oil & Gas Co. Ltd., 170 Bay St., Toronto, Ont. J. M. Pryde Co. Ltd., 121 11 Ave. W. Calgary, Alta., engr. Awarded July 25.

BRITISH COLUMBIA—B. C. Govt., Parliament Bldgs., Victoria,

Mannix Ltd., 736 Granville St., Vancouver, B.C., CA **$981,292**. Proj. 776, 6.76 mi. Section 1 Southern-Transprovincial Hy. from Castlegar to Sheep Lake. Bids July 5, awarded July 25. CD 7/12, under LB.

BRITISH COLUMBIA—B. C. Govt., Parliament Bldgs., Victoria,

P. F. Law Constr. Ltd., 500 Beatty St., Vancouver, B. C., CA **$951,568**, Proj. 777, 5.32 mi. Sect. 2. Southern Trans-Provincial Hy. between Christian Creek and Sheep Creek. Bids July 6, awarded July 25. CD 7/19, under LB.

Rogers Majestic Ltd., 375 Terminal Ave., Vancouver, B. C., CA **$854,330**. establish communication sys. between Prince George, Fort St. John and Dawson Creek, BRITISH COLUMBIA, Pacific Great Eastern Ry. B. E. Valde, ch. engr., Squamish, B. C. Awarded July 24. CD 4/15/47.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto,
H. J. McFarland Constr. Co. Ltd., Box 559, Picton, Ont., CA **$1,139,643**. (3 bidders) Contract 56-06, grading, culverts 7.1 mi. Trans-Canada Hy. 7, Kingston Dist. Bids July 25, awarded July 28. CD 8/1, under LB.

BUILDINGS—LB & CA

▲ **Oland Constr. Ltd.**, 920 3 Ave. N., Lethbridge, Alta., LB **$1,330,000** (4 bidders) PUBLIC BLDG. addns., alterations, LETHBRIDGE, ALTA. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids July 25. CD 6/20.

Dunker Constr. Co. Ltd., 178 Louisa St., Kitchener, Ont., CA **$669,000** (2 bidders) FEDERAL BLDG. for Income Tax Div., 166 Frederick St., KITCHENER, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids July 4, awarded July 25. CD 7/12, under LB.

▲ **Fluor Corp. of Canada Ltd.**, 200 Bloor St. E., Toronto, Ont., CA est. **$3,000,000**. OIL REFINERY EXPANSION, SARNIA, ONT., Canadian Oil Companies Ltd., 204 Richmond St. W., Toronto, Ont. Awarded July 28.

(Proposal Advertisement see pp. 142 to 145)

when you're contemplating construction... remember this picture!

If you are planning to build in an area that may possibly be affected by flood conditions, your best insurance is dependable foundation construction. While replacing stock and equipment as a result of flooding is certainly not a simple task, it is nothing compared to the repair or reconstruction cost of a complete building or plant.

For over half a century, we at Raymond have been specializing in all types of foundation work under every conceivable condition. In the recent storms in the Northeast, a number of structures resting on Raymond Piles were flooded. (One of these, the Stacey War Memorial Building in Trenton, is shown above). NONE OF THE BUILDINGS ON RAYMOND FOUNDATIONS IN ANY OF THE FLOOD AREAS WAS MOVED A FRACTION OF AN INCH, even though some of the surrounding structures were swept away.

We'll be happy to apply our experience to your foundation problems, whether they're large or small, routine or unusual. Remember, Raymond foundations are *permanent*.

THE SCOPE OF RAYMOND'S ACTIVITIES

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Foundations . . . Marine Structures . . .
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Complete service for all types of construction

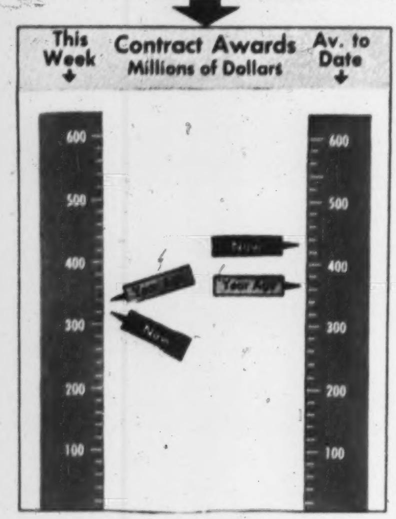
RAYMOND CONCRETE PILE CO.

140 CEDAR STREET • NEW YORK 6, N. Y.

Branch Offices in Principal Cities of the United States, Canada, Central and South America

Construction Scoreboard

Activity this Week



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 32 wks 1956	Chge %
	$ millions		
Federal	$15.2	$1,130.6	—0.6
State and Municipal	118.3	4,023.6	+22
Total Public	133.5	5,154.2	+16
Total Private	189.3	8,676.8	+19
U. S. Total	$322.8	$13,831.0	+18
By Type of Work			
Waterworks	$3.2	$228.3	+43
Sewerage	13.7	368.0	+55
Bridges	11.1	379.9	+28
Highways	46.8	1,505.4	+12
Earthwork, Waterways	7.6	481.6	+45
Buildings:			
Public, Excl. Hsg.	37.6	1,257.0	+14
Public Housing	...	216.0	+28
Private Housing	137.7	3,566.5	—11
Commercial	16.8	1,148.6	+6
Industrial	24.9	3,549.6	+105
Unclassified	23.4	1,130.1	—14
U. S. Total	$322.8	$13,831.0	+18

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

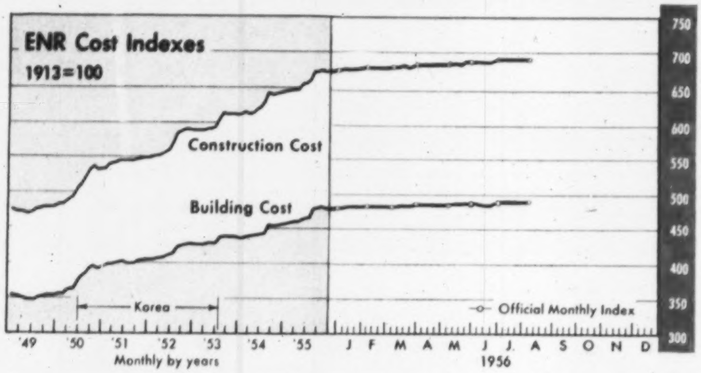
	Week of Aug. 2	Cum. 31 wks 1956	Chge '55-'56 %
	$ millions		
Corporate Securities	$53.6	$2,747.2	+32
State and Municipal:			
All Except Housing	96.6	2,916.7	+10
Housing	....	42.3	—33
Federal Loans	....	78.5	—3
Federal Aid	....	1,070.0	+44
Total Nonfederal	$150.2	$6,850.7	+22
Federal Appropriations:			
In U. S.	$1,983.4	$3,101.9	+501
Outside U. S.	....	15.9	—66
Total New Capital	$2,133.6	$9,968.6	+62

Cost Indexes as of Now

ENR INDEXES (1913=100), 20-cities' average	Week of Aug. 2 1956	% Change from July 5 1956	% Change from Aug. 4, 1955
Construction Cost	696.31*	+0.2	+3.5
Building Cost	491.22*	+0.3	+2.7

* Official Monthly Index for August.

To convert above indexes to 1926=100: Divide Construction Cost by 2.080; Building Cost by 1.845.
1949=100: Divide Construction Cost by 4.770; Building Cost by 3.518.



WAGE RATES, 20-cities' average

	August 1956	% Change from July 1956	% Change from August 1955
Common	$2.192	+0.2	+5.0
Skilled (average 3 trades)	3.412	+0.6	+4.5
Bricklayers	3.688	+0.4	+4.7
Structural Ironworkers	3.383	+0.9	+4.2
Carpenters	3.166	+0.7	+4.8

MATERIAL PRICES, 20-cities' average

Structural Steel (average 3 mills), per cwt	$4.600	0	0
Lumber, 2x4 Fir, per M fbm	120.250	−0.3	−0.5
Lumber, 2x4 Pine, per M fbm	105.466	+1.9	+5.4
Cement, bulk, per bbl	3.730	0	+4.9
Sand, per ton	2.422	0	+2.5
Ready-mixed concrete, per cu yd	13.343	+1.1	+6.4

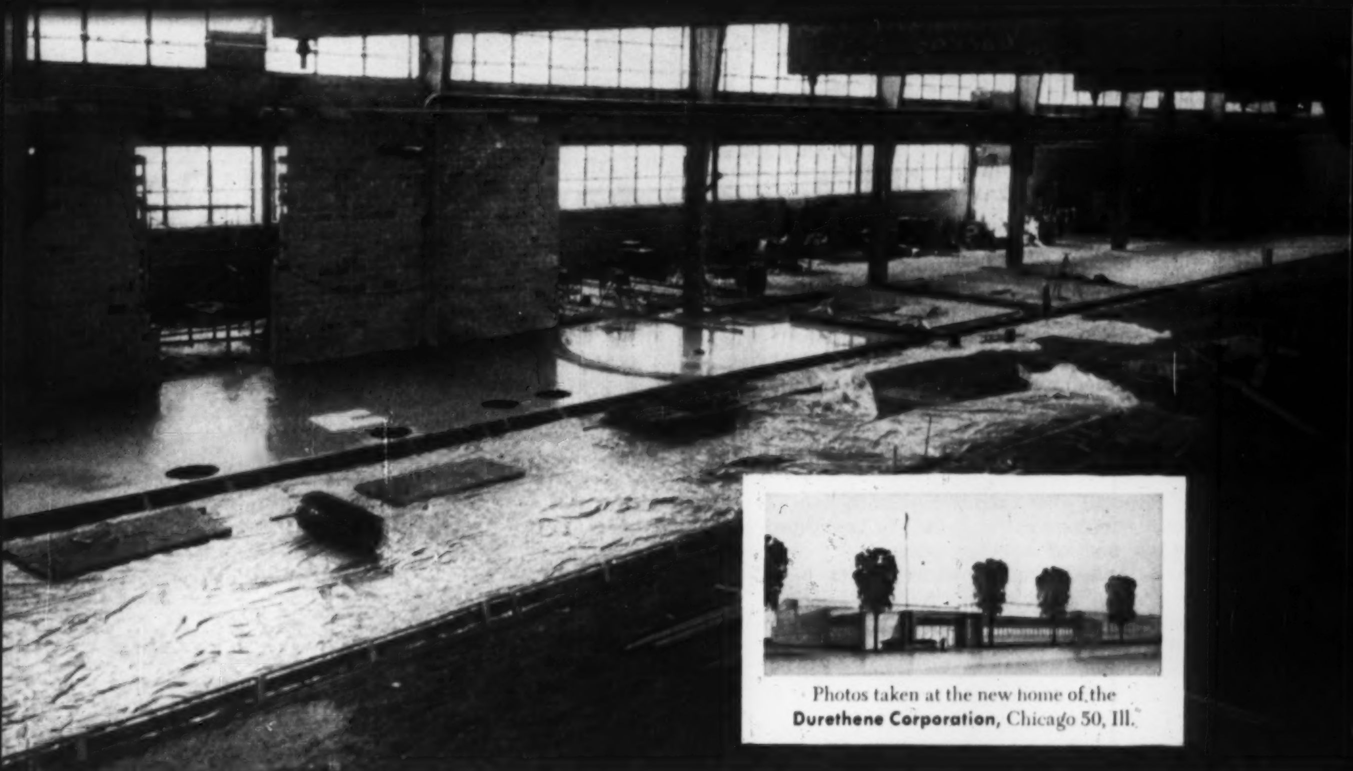
ENR INDEX REVIEW

	Construction Cost 1913=100	Construction Cost 1949=100	Building Cost 1913=100	Building Cost 1949=100	Volume 1913=100	Volume 1949=100
1955						
Aug.	672.24	140.92	478.03	135.89	508	147
Sept.	672.74	141.03	479.15	136.20	576	166
Oct.	673.89	141.27	479.99	136.44	628	182
Nov.	673.20	141.13	479.30	136.25	561	162
Dec.	673.13	141.11	478.70	136.08	544	157
1955 Av.	**659.72**	**138.31**	**468.80**	**133.33**	**600**	**173**
1956						
Jan.	676.36	141.79	480.48	136.58	645	186
Feb.	680.21	142.59	483.08	137.32	736	213
Mar.	680.20	142.59	483.14	137.34	786	227
Apr.	683.28	143.24	485.56	138.02	764	221
May	688.43	144.32	487.36	138.54	684	198
June	692.13	145.09	488.70	138.92	636	184
July	694.75	145.64	489.23	139.07	740	214
Aug.	696.31	145.97	491.22	139.63	...	...

MATERIAL SHORTAGES

- **Stainless steel sheets**—Birmingham reports supplies extremely short with local supply sources exhausted; deliveries now six to eight months. Chicago supplies adequate, but tightening. Influence of recent steel strike felt in Detroit, Kansas City, Minneapolis, St. Louis, San Francisco. Shortages continue in Montreal and Toronto.
- **Aluminum building sheets**—Shortages continue in Denver, Kansas City, Montreal, Toronto; tightening in San Francisco. Deliveries in St. Louis still extend to four months. Detroit deliveries shortened to one month.
- **Fiberboard sheathing and insulation**—Short in Baltimore, Birmingham, Detroit. Sheathing still short in Montreal, but delivery time cut to 30 days.

For ENR cost indexes for preceding years see insert chart ENR Sept. 29, '55. Extra copies 50 cents.



Photos taken at the new home of the **Durethene Corporation**, Chicago 50, Ill.

The 67,000 square foot concrete floor of the new home for Durethene Corporation shows the three steps in using a polyethylene moisture barrier. In the foreground, the area has been graded. In the middle, polyethylene has been laid out in preparation for the wire mesh. Towards the far wall, concrete is being poured and given a preliminary finish. Film by Durethene Corp.

They use moisture barrier of polyethylene film…

"Now we get 100% curing action!"

"Prior to the use of polyethylene, concrete had to be kept wet after pouring as an aid to the curing process. Failure to do this led to drying and cracking. With polyethylene acting as a moisture barrier, we now get a 100% curing action due to its positive moisture retention qualities." That's the report from Daniel Carlson, Construction Superintendent for Campbell, Lowrie and Lautermilch, general contractors of Chicago, Illinois.

"In addition," Carlson said, "we get a better set to the concrete floor, smoother surface, and exceed our previous testing requirements. Polyethylene has reduced our moisture barrier laying time by half because it is lightweight, tough and easy to handle."

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What Will the Expanded Road Progra

For materials suppliers, the paths of business leading from the present to 1969 should be paved with gold.

Industry's ambitious expansion plans, charted by the McGraw-Hill Department of Economics for the next three years (ENR May 24, p. 102), indicate that plant and equipment expenditures will add up to a lush market.

Municipal and state public works look strong for the long pull. Credit-choked housing will get its second wind. And, highways promise a gigantic market. The Bureau of Public Roads last week trotted out some estimates to indicate just how much of a market highways offer. BPR sees:

Highway construction during the thirteen years from 1957-69 will require 49,000,000 tons of steel; 1,339,000,000 barrels of cement; 128,000,000 tons of bituminous material; and 9,710,000,000 tons of aggregate.

These materials will be needed to construct the vast $33-billion federal-aid highway program and all other highway construction during the next ten years, including additional federal-aid work on primary, secondary and urban roads. Programs for the latter, on a 50-50 matching basis, have so far been authorized only through 1959.

The year by year materials and on-site labor requirements for highway construction are shown in the tables below. The represent BPR's estimates.

Materials requirements for highways will rise sharply next year. They will continue to grow each year until they reach a peak at levels generally 42% higher than this year.

. . . In Terms of Materials an

Calendar Year	Units	1955	1956	1957	1958	1959	1960	1961
Materials								
Structural Steel	Thousand tons							
Wide Flange Shapes		444	663	809	880	918	944	944
Standard Shapes		211	303	370	402	419	431	431
Bearing Piles		96	144	176	191	200	205	205
Sheet Piles		39	43	53	58	60	62	62
Wide Plates		58	87	106	115	120	123	123
Standard Plates		135	202	246	268	279	287	287
Subtotal		983	1,442	1,760	1,914	1,996	2,052	2,052
Reinforcing Steel (1)	Thousand Tons							
Bar		689	745	909	989	1,030	1,060	1,060
Wire		118	186	227	247	258	265	265
Subtotal		807	931	1,136	1,236	1,288	1,325	1,325
Corrugated Metal Pipe	Thousand tons	148	165	201	219	228	234	234
Other Misc. Steel (2)	Thousand tons	147	182	235	256	267	274	275
Total Steel	Thousand tons	2,085	2,720	3,332	3,625	3,779	3,779	3,886
Cement (3)	Million bbls.	61.6	74.0	94.5	102.9	107.4	110.5	110.8
Bituminous Material	Million tons	5.85	7.15	8.73	9.49	9.49	9.90	10.18
Aggregates (4)								
Purchased (5)	Million tons	201	228	278	303	316	325	325
Produced (5)	Million tons	202	316	386	419	437	449	449
Total Aggregates	Million tons	403	544	664	722	753	774	774
Lumber	Million B. F.	385	403	492	535	558	573	573
Timber Piling	Million B. F.	82	119	146	158	165	169	169
Concrete Culvert Pipe	Million tons	2.64	2.89	3.29	3.57	3.72	3.83	3.83
Clay Pipe and Tile	Thousand tons	47	55	67	73	76	78	78
Petroleum Products (6)	Million gals.	652	744	908	987	1,059	1,059	1,059
Explosives	Million lbs.	90	102	124	135	141	144	144
Manpower								
Labor (7)	Thousand Workers	323	365	424	442	443	441	426

(1) Does not include reinforcement in concrete culvert pipe.
(2) Includes steel guard rail, fences, cast iron pipe, pavement joint devices, tubular piling, nails, etc.
(3) Does not include cement in concrete culvert pipe.
Source: U. S. Bureau of Public Roads.

Mean . . .

The amount of steel needed for highway work will jump next year. BPR estimates that the nation's highways will require 22% more wide-flange structural steel shapes next year than the 663,000 tons slated for roadbuilding this year.

The 303,000 tons of standard structural shapes needed for highways this year will climb 22%, to 370,000 tons next year, according to BPR. And, a similar 22% increase is expected to develop next year in the demand for reinforcing bars.

By 1958, the tonnage of steel needed for highways will be up 33% over 1956. And, during the peak years (1960-67), the tonnage of steel items used for highways should soar to a level about 42% above this year's needs.

Steelmakers will not be alone in reaping the benefits of the enormous highway program. Cement requirements will rise even faster than the need for steel, according to the Bureau of Public Roads.

Next year, BPR estimates that highways will require 94,500,000 barrels of cement, 28% more than the estimated total for 1956.

In 1958, cement needed for roadbuilding will rise 39% over this year to a total of 103,000,000 barrels. By 1965, demand for cement will hit a peak of 113,600,000 barrels, up 54% over the amount that BPR estimates will be used this year.

Highway requirements for bituminous materials, petroleum products, lumber, timber piling, explosives and clay pipe and tile should accelerate at the same rate as steel needs: 22% in 1957; 33% by 1958; and 42% during the peak roadbuilding years.

These king-size quantity requirements bring up a question that is especially pertinent to two materials—cement and steel. Will producers be able to meet the heavy demands?

Cement probably will offer much less of a problem than steel. The cement industry has increased its capacity about 25% in the past two years and some of the major producers are charting new expansion programs even before their present projects have been completed.

On the basis of an ENR survey made late last year (ENR Dec. 15, 1955, p. 21), cement producers expected to add 56,000,000 barrels to their capacity in 1956. In addition, a bare minimum of 15,000,000 barrels in additional capacity has been planned for 1957 and later years.

By December of this year, the cement industry should have a capacity of approximately 366,000,000 barrels. Of this total, the Bureau of Public Roads estimates that 74,000,000 barrels will be used for roadbuilding. Next year, with capacity running slightly higher, highway work will take 94,500,000 barrels, according to BPR estimates.

Steel presents a different problem. The critical shortage of structural steel reported earlier this year (ENR Mar. 15, p. 21) has grown more serious with each passing month.

The vast highway program is coming on top of a boom demand that has steadily mounted for more than a year—a demand that has consistently outpaced supply.

There is every indication that the structural steel shortage will extend well into 1957; the road program may feel the pinch next year. How much the road program will be affected by the structural steel shortage after 1957 probably will depend on (1) the level of activity for other types of construction; (2) the amount of additional structural rolling capacity added by mills; and (3) the amount of plain material that the industry diverts to construction steel.

Manpower?

1962	1963	1964	1965	1966	1967	1968	1969	Total 1957–1969
944	944	944	944	944	944	866	814	11,839
431	431	431	431	431	431	395	371	5,405
205	205	205	205	205	205	188	177	2,572
62	62	62	62	62	62	56	53	776
123	123	123	123	123	123	113	106	1,544
287	287	287	287	287	287	264	248	3,601
2,052	2,052	2,052	2,052	2,052	2,052	1,882	1,769	25,737
1,060	1,060	1,060	1,060	1,060	1,060	972	914	13,294
265	265	265	265	265	265	243	228	3,323
1,325	1,315	1,325	1,325	1,325	1,325	1,215	1,142	16,617
234	234	235	234	234	234	215	202	2,938
275	275	275	275	275	274	252	237	3,445
3,886	3,887	3,886	3,886	3,886	3,885	3,564	3,350	48,737
111.2	111.5	113.3	113.6	112.6	110.1	103.6	97.0	1,399.0
10.18	10.18	10.18	10.18	10.18	10.18	9.34	8.77	127.67
325	325	325	325	325	325	298	280	4,075
449	450	449	449	449	449	412	388	5,635
774	775	774	774	774	774	710	668	9,710
574	574	574	574	573	573	526	495	7,194
170	170	170	170	169	169	156	147	2,128
3.83	3.83	3.83	3.83	3.83	3.83	3.51	3.30	48.03
79	79	79	78	78	78	72	68	983
1,059	1,059	1,059	1,059	1,059	1,059	971	913	13,280
144	145	145	144	144	144	133	125	1,812
414	398	394	384	370	354	326	302	5,118

(4) Does not include aggregates in concrete culvert pipe.
(5) By contractors.
(6) Includes gasoline, diesel oil, lubricating oil, grease, etc.
(7) On-site requirements assuming 1,600 man-hours per year per worker.

Industrial building, highways surge as . . .

Contracts Set July Record

Heavy construction contracts for the month of July set a new record for the month. The $1.8-billion total was up 13% over June and 9% over the same month last year.

Contract awards for the first seven months of this year ran 19% ahead of the same period last year. So far this year $13.2 billion worth of contracts have been let.

Private construction in July was 23% ahead of the June figure and 89% ahead of July 1955. From January to July of this year, $8.2 billion worth of contracts in private construction have been awarded.

Public construction awards which continued to show award gains, edged 1% ahead of the June figure but climbed more than 11% above July 1955. The seven-month total for this year has reached $4.9 billion.

As in previous months industrial building awards set the pace in the private construction field. During the month of July, industrial building awards climbed to $642 million, more than doubling the June figure, and soaring 85% above the total set in July 1955. Two aluminum reduction plants, one mammoth steel slabbing mill, a paper mill, plus a sizable sintering, cement and oil refinery plant helped to push the July industrial building figure to the highest total of any month since February 1951.

Highway awards climbed 17% ahead of June and jumped 16% ahead of July 1955. Awards came so fast in this category that in July, roadbuilding posted the best weekly average on record.

A big leader last month was public building, which hit the second highest monthly total of the year, 366% ahead of June and 44% ahead of July 1955. For the first seven months of this year, public building awards have reached the $213-million mark, a gain of 29% over the same period last year.

Private housing, which showed some increase in the month of June, last month dropped 18% behind the June figure and was 22% under July 1955. So far this year, housing is trailing the record breaking 1955 by about 12%.

To date every region is ahead of the comparable 1955 figure. The Middle Atlantic is running well above the $3-billion mark, and the Midwest and West of the Mississippi (who are about neck and neck) are racing for the $3-billion line.

$43-Million Civic Center Approved by Rochester

City and county officials have approved a master plan for development of a $43-million Civic Center in Rochester, N. Y.

The center will bring together all activities of the city and county on a 26-acre downtown Rochester site bordering the Genesee River. Space will be provided for later addition of state and federal buildings.

The New York architectural firm of Voorhees Walker Smith & Smith planned the project along with Faragher & MacComber, Rochester architects. Several other firms are involved in design of individual buildings within the group.

Costs Edge Higher

Wage hikes nudge indexes to new all-time records; steel prices due to soar

Construction costs inched their way to a record high because of wage increases for building trades in a few cities last month.

ENR's 20-Cities Construction Cost Index moved up 0.2% above the July value to reach a record 696.31 for August, based on 1913 = 100. A similar 0.3% rise in the Building Cost Index pushed that indicator to an all-time high of 491.22, also based on 1913 = 100.

Most of the wage increases won by construction unions in last month's bargaining ranged from 10 to 15 cents an hour, including fringe benefits.

However, San Francisco carpenters (members of the piledrivers union) picked up a seven-cent hourly raise

(Continued on page 136)

Engineering Construction Contracts July 1956

Engineering News-Record *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000*

Four Weeks—Thousands of Dollars (000 Omitted)

	July, 1956							U. S. Cumulative Seven Months		%	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1956	1955	Change '55 to '56	July 1956
Public Works											
Waterworks	1,105	3,888	2,019	5,900	42,982	1,586	57,480	215,858	153,835	+40	1,712
Sewerage	3,233	5,000	3,098	15,719	5,343	5,658	38,051	346,249	223,022	+55	2,814
Bridges	3,623	3,445	4,562	16,152	6,256	5,534	39,572	355,426	275,282	+29	3,366
Earthwork and waterways	258	2,634	6,111	894	11,439	14,260	35,596	465,839	318,785	+46	39,411
Streets and roads	43,597	16,434	38,725	39,454	19,134	30,001	217,345	1,401,127	1,250,558	+12	27,520
Public buildings, residential	1,926	1,782	3,890	....	15,983	13,797	37,378	213,293	164,725	+29	352
Other public buildings	19,670	28,003	25,542	30,485	39,510	43,256	186,466	1,200,711	1,022,327	+17	5,289
Unclassified	5,078	16,726	35,648	7,584	22,902	31,994	119,932	702,976	767,727	− 9	3,097
Total public	**78,490**	**77,912**	**119,595**	**116,188**	**193,549**	**146,086**	**731,820**	**4,901,479**	**4,176,261**	+17	**83,561**
Federal government (included in above classifications)	14,195	17,508	52,153	6,900	54,269	61,399	206,424	1,106,295	1,105,431	+0.1	5,574
Private											
Bridges	....	....	1,725	....	....	....	1,725	4,404	1,625	+171	....
Industrial buildings	12,125	24,216	166,678	304,033	71,831	63,352	642,235	3,479,263	1,600,898	+117	102,863
Mass housing	5,473	107,717	43,438	42,219	91,449	33,337	323,633	3,343,444	3,819,659	−12	9,801
Commercial buildings	8,963	25,902	7,716	27,249	27,952	17,559	115,341	1,076,608	1,035,731	+ 4	10,003
Unclassified	882	78	226	1,388	16,146	1,944	20,664	393,533	474,130	−17	96,415
Total private	**27,443**	**157,913**	**219,783**	**374,889**	**207,378**	**116,192**	**1,103,598**	**8,297,252**	**6,932,043**	+20	**219,082**
Total Engineering Construction:											
July, 1956—4 weeks	**105,933**	**235,825**	**339,378**	**491,077**	**400,927**	**262,278**	**1,835,418**	....	....	....	**302,643**
June, 1956—4 weeks	102,089	347,719	231,235	319,573	311,014	309,950	1,621,580	....	....	....	267,336
July, 1955—4 weeks	81,185	419,607	194,252	385,357	400,466	203,296	1,684,163	....	....	....	135,971
Seven Months—1956	**751,270**	**3,372,200**	**1,488,492**	**2,834,685**	**2,814,903**	**1,937,181**	....	**13,198,731**	....	+19	**1,380,354**
Seven Months—1955	551,049	3,211,825	1,176,973	2,374,519	2,535,431	1,258,507	....	....	11,804,304	....	987,386
% Change '55 to '56	+36	+5	+26	+19	+11	+54	....	....	....	....	+40

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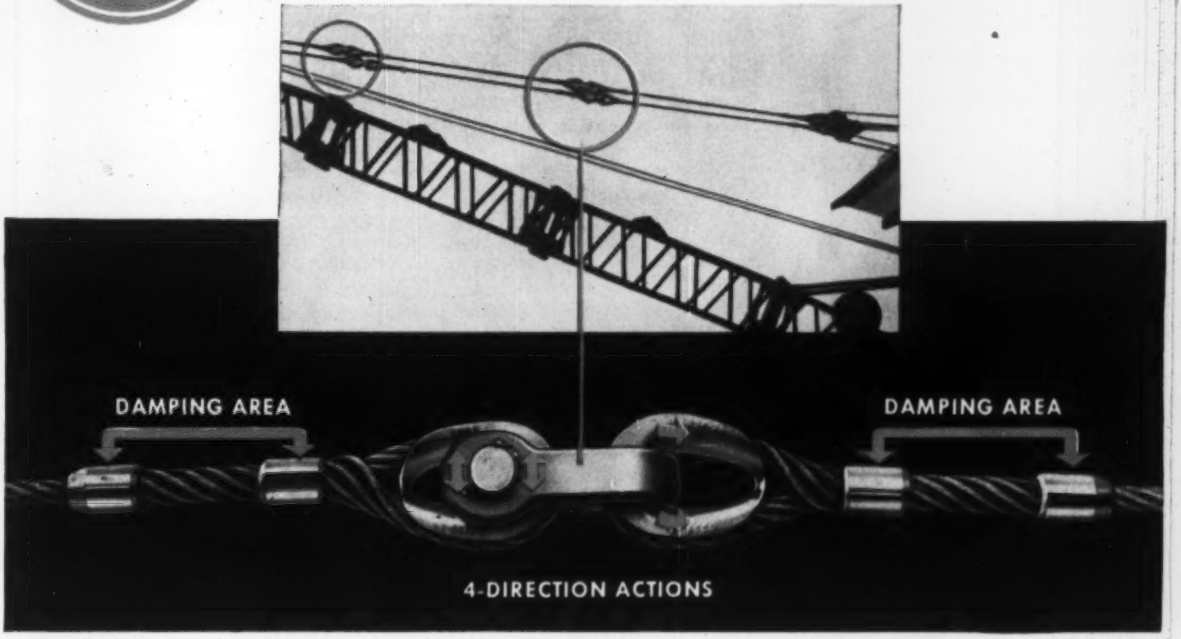

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Failure results from either overloading or fatigue. You can avoid overloading, but fatigue occurs every time vibration is stopped suddenly in a wire rope and it is practically impossible to measure how badly the rope is fatigued before failure occurs.

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ACCO Registered Boom Cable Connectors give movement in FOUR DIRECTIONS and thus change fatigue to wear, which can be measured easily.

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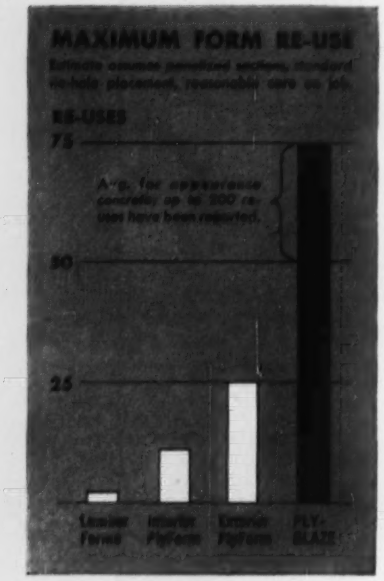

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under their expiring contract and won another 12.5 cents an hour under their new agreement. At the other end of the scale, laborers in Atlanta settled for a five-cent hourly gain.

• **Lumber prices shift**—ENR reports showed that lumber prices continued to soften during the month. Douglas fir prices were marked down in four cities; southern pine prices dropped in two cities.

These declines were offset in the national index by higher lumber prices in Pittsburgh.

Cement prices were unchanged except for Cincinnati, where a one-cent a barrel rise was reported.

While contractors can't ignore July's moderate cost increase, the month still takes a back seat to August and the big question: How much will the steel industry boost its mill prices?

• **Warehouses anticipate hike**—Expecting a sharp rise in mill prices, warehouses in some cities have raised base prices for reinforcing bars and structural shapes by $10 to $12 a ton.

Some distributors think even these increases will fall short of the mill price rise when it is announced.

What would an increase of this size do to construction costs? A $10 per ton increase in the base mill price of structurals would bring a 12.5 point rise in the ENR 20-Cities Cost Indexes; a $12.50 increase would push the indexes up by 15.6 points.

On a percentage basis, such increases in the mill price of structurals would result in an increase of 1.8% to 2.2% in the Construction Cost Index and an increase of 2.5% to 3.2% in the Building Cost Index.

Canadian Steel Pact

Two-year agreement gives steelworkers 33.5 cents; contract averts strike

The largest Canadian steel mill, Steel Company of Canada, Ltd., Hamilton, Ont., has signed a new contract with United Steelworkers of America, Local 1005, covering all the company's plants in eastern Canada.

The new contract, retroactive to April 1, calls for a package increase of 33.5 cents an hour over the two-year period.

The pact was negotiated during eleven days of hearing by an Ontario government conciliation board. It includes concessions in a new pension plan and elimination of wage differentials between various plants of the Steel Company of Canada.

Higher steel prices will follow the new wage contract, but H. G. Hilton, president of the steel company, has not yet announced how large the increases will be.

Hilton said, in effect, that while the substantial pay boost for the steelworkers will affect steel prices and the Canadian economy, a strike would have been even worse.

"The difficult decision the company had to make this year," Hilton said, "was whether higher steel prices would be as damaging to the economy and the general public as would a lengthy halt in a large part of Canada's steel production at this time. We decided that in the interest of two years of labor stability, we would make the settlement proposed by the board."

The month-long U. S. steel strike was a potent factor in the Canadian negotiations. Canada has been getting as much as 25% of the steel it needs from U. S. mills. With this supply disrupted, a Canadian strike would have had far-reaching effects.

Business Briefs . . .

• **Atomic power**—Stone & Webster Engineering Corp. has been retained by Westinghouse Electric Corp. and Pennsylvania Power & Light Co. to develop certain engineering and economic phases of the Pennsylvania Advanced Reactor Project (PAR). The project was organized in mid-1955 to carry out a research development and engineering program on the aqueous homogeneous reactor. Objective: to have a 150,000 kw nuclear power plant in operation on the PP&L system by 1962.

• **Bank urges "stretch-out"**—The Bank of Canada has recommended that a number of proposed projects in Canada's $8-billion capital expansion program be postponed or stretched out over a longer period of time to avoid a construction overload that could run costs up substantially.

• **Bid prices move up**—Contractors' bid prices went up again in the second quarter for federal-aid highway work. The Composite Mile Index, compiled by the Bureau of Public Roads, advanced 2.3% over the first quarter. This pushed contractors' bid prices up nearly 8% over a year ago, but still short of the all-time peak reached in the first three months of 1953.

Pittsburgh's

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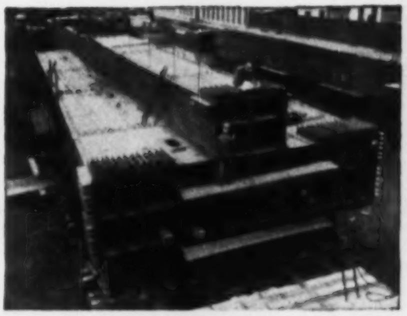
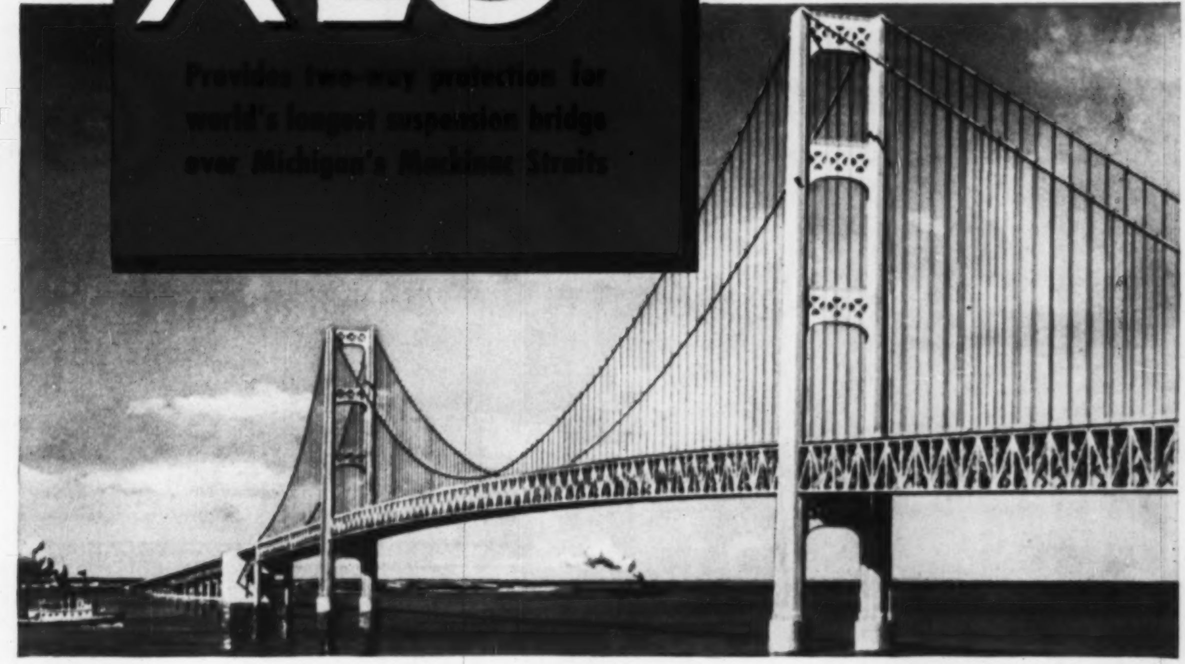


One of the tower sections being assembled at Ambridge Plant of the American Bridge Division, United States Steel Corporation.



1. Safeguards steel shapes against corrosion during transit and erection

2. Makes an excellent foundation for field painting

A 70-YEAR dream come true! That's the new five-mile bridge now being erected to link Michigan's upper and lower peninsulas. This huge project was designed by Dr. D. B. Steinman. The American Bridge Division, United States Steel Corporation, is fabricating the 75,000 tons of structural steel for its superstructure and major portions of the foundation caissons and cofferdams.

This giant project features a suspension bridge with a center span of 3,800 feet, two 1,800-foot side spans, and two 472-foot unloaded backstay spans. Total length, including anchorages, is 8,614 feet, making it the world's longest suspension bridge.

Structural shapes for this viaduct are shopcoated with Pittsburgh's X-L-O Primer to protect them against corrosion during storage, transit and erection. This remarkable finish eliminates need of costly metal cleaning. Its remarkable wetting characteristics assure uniform coverage even over surface irregularities caused by mill scale. Satisfactory through drying of film within twenty-four hours, regardless of weather, makes possible prompt shipment to job sites.

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MAIN OFFICE & FACTORY DECATUR, ILLINOIS

Voluntary Wage Freeze Urged

Member of construction industry proposes state-wide lid on wages in order to promote future economic prosperity

A representative of the Building Contractors Association of New Jersey last week proposed that construction wages within the state be frozen voluntarily at present levels for a period of 18 months as a cooperative labor-management step toward the preservation of present economic prosperity.

The proposal was made by Paul J. Brienza, managing director of the association, at the New Jersey AFL-CIO Summer School and Institute conducted at Rutgers University.

Substance of the proposal, presented for study and discussion, is that no new demands for wage increases or fringe benefits be made for the next year and a half unless, in the meantime, the cost of living index goes up at least five points. During this period, a special committee (preferably one appointed by the existing Joint Labor-Management Committee) would study the present wage structure and related economic conditions with a view to coming up with recommendations to stabilize wages in the industry.

• **The theory**—In presenting the plan, Brienza reminded the industry of the goose that laid the golden egg. "Only a profitable business," he said, "can offer steady work, high wages and other fringe benefits, which are only made possible when there is strength in the economy of the business. We all recognize that the earning power of a business depends on keeping costs down and production output high. . . . We all believe that the $5.00 an hour wage is on the horizon for the construction industry. Let us not destroy the possibility of reaching that level by recklessly extending ourselves beyond the realm of being practical and realistic."

Calling for a "realistic approach" to collective bargaining demands, Brienza noted the mutual responsibility of management and labor to each other, and emphasized their joint responsibility to the general public. It was this same sense of mutual responsibility, he indicated, that led earlier to the formation of the Joint Labor-Management Committee to work toward labor peace in an effort to attract investors and owners to build and expand, thus "creating prosperity for all concerned in the construction industry in our state."

Wages in the construction industry, Brienza said, have risen more rapidly in recent years than has the cost of living. Among the examples he gave of present New Jersey wage rates, including fringe benefits, are a high of $4.41 and a low of $3.55 for bricklayers, a high of $4.40 and a low of $3.93 for ironworkers, and a high of $4.06 and a low of $3.15 for carpenters.

• **Some reactions**—Building trades leaders and delegates attending the Rutgers session generally agreed that the proposal's objective merits some careful study, but expressed a number of reservations to the specific plan.

Conceding their awareness of labor and management's joint responsibility to the industry and the public, they were inclined to view the proposal as a two-way street on which labor shouldn't make all the concessions and sacrifice. On its face, they saw little indication of what management proposed to do to cut or hold the line on building costs.

A number of examples were cited of the numerous "angles" that have to be considered in evaluating the proposal. Like the common argument over hourly rates versus annual income, most of these related to the nature of the industry itself—to the employment hazards and uncertainty which construction workers face and which make them think twice before closing the door to the possibility of economic relief which future contingencies might necessitate.

Some of the delegates were not convinced that the proposal would stimulate business because "owners won't build buildings they don't need." Others saw quite a difference between the cost of living index to which the proposal is tied and a worker's standard of living in which his interest lies.

UA's Apprentice Contest Is Now Under Way at Purdue

The Third Annual International Plumbers and Pipe Fitters Apprentice Contest is being held this week at Purdue University. Seventy-four apprentices—winners of local contests held throughout the United States and Canada—are competing.

Simultaneously under way at the same university is a five-day course for apprentice instructors. More than 150 from local unions have enrolled.

The apprentice contests are sponsored by the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting industry in cooperation with the National Association of Plumbing Contractors, the Mechanical Contractors of America, Inc., and the National Association of Master Plumbers and Heating Contractors of Canada.

Separate competitions are being held for plumbing apprentices and pipe fitting apprentices. Winners will be selected on the basis of written and performance tests. First place winners will each receive a $1,000 award, with second and third place winners getting $500 and $250, respectively.

The instructor training program is a joint effort of UA's Training Department and Purdue to improve teaching ability. New equipment and materials are being emphasized and new training devices and techniques demonstrated.

Wage Boosts Granted To Workers in Hawaii

Several wage increases for construction workers have been either negotiated or granted voluntarily in Honolulu, T. H.

The plumbers and pipe fitters union, AFL-CIO, has negotiated a three-year contract with ten Honolulu firms. The agreement provides for an aggregate increase of 35 cents an hour.

Workers are to receive 15 cents August 15, pushing the hourly rate to $2.60. Wages will go to $2.70 on August 15, 1957, and to $2.80 a year later.

Meantime, the General Contractors Association of Hawaii has announced a 10-cent hourly across-the-board increase for employees of general contractors.

Effective October 1, carpenters will be raised to $2.30 an hour, crane operators to $2.55, tractor operators to $2.38 and laborers to $1.66.

Painters' wages are to go up a total of 30 cents in three increments—to $2.05 on September 15, to $2.15 on January 15, and to $2.25 on April 15.

The wage boosts of the general contractors cover trades that are largely nonunion or unorganized in Hawaii. Although the AFL-CIO building trades have long had an eye on the area, unionization has not been pushed extensively except in the electrical, plumbing and iron working trades. The carpenters, however, have just assigned their first permanent organizer to Hawaii.

Secondary Boycott

Damage suit is pending on Nike base picketing

Although final ruling is unlikely for at least two months, United States District Judge George H. Boldt in Seattle, Wash. appears to have been unconvinced, after a 2½-week trial, that four Seattle labor unions acted unlawfully in picketing the construction of Nike guided missile installations in the Seattle area by Cisco Construction Co., of Portland, Ore.

Cisco sought damages in the amount of $468,000, charging the unions had engineered a secondary boycott in an effort to unionize its workers.

Judge Boldt had asked Cisco attorneys for a memorandum on any concerted action by the unions tending toward termination of subcontracts. He found the unions had acted lawfully up to and including the time pickets were placed on the job in October 1954, and said Cisco had not proved that the purposes of the defendants "from the outset" were in violation of the Taft-Hartley Act.

Testimony of Cisco's president, Clifford Schiel, that labor leaders had attempted to force him to sign a labor contract was not borne out by the evidence, Judge Boldt said.

Defendants are the District Council of carpenters, teamsters, operating engineers, and street pavers. They said they had set up picket lines to prevent the breaking down of working conditions and wages by a nonunion contractor, but denied any part in a secondary boycott, which the company said caused it heavy loss.

Payment of AGC Wage Rates To City Workers Questioned

The Chamber of Commerce of Los Angeles has registered its objection to a proposed city ordinance with far-reaching implications.

Under the proposal, city construction workers in Los Angeles would be given the wage rates paid by Associated General Contractors, less 10% representing the non-wage benefits received by municipal workers.

In voicing its protests through the chairman of its state and local government committee, the chamber of commerce said the city is constitutionally required to leave wage-fixing authority with the city council whose wage determinations are supposed to be comparable to those paid in private industry. By tying wage rates to union contracts negotiated by the AGC, it was argued, the council would lose control of wage rates and "city policy would be determined by contracts privately negotiated in only one segment of industry."

Texas Supreme Court Curbs State's Right-to-Work Law

Efforts to extend the scope of the right-to-work law in Texas were defeated last month when the Texas Supreme Court ruled that the state law cannot be used to strike down a union shop contract proposed for employees of the Santa Fe Railroad.

Following the U. S. Supreme Court's recent decision in the Hanson case (ENR June 14, p. 142), a majority of the Texas court found that the proposed contract falls within the premissible limits of the National Railway Labor Act, which takes precedence over the state law.

The principal issue was whether the union under the terms of the contract was requiring more from railroad employees than the payment of periodic dues, initiation fees and assessments (excluding fines and penalties). If so, the argument ran, the state law would come into play because the contract would exceed the authorization contained in the federal law.

In ruling that the union was not requiring full union membership, the court, which split on the issue six to three, said an "unwilling employee need assume no pledge of conformity nor promise of obedience, nor even make application for membership to retain employment under the union shop contract."

Dangerous Conditions May Justify a Strike

The National Labor Relations Board has upheld the right of employees to strike without reprisal, when the walkout stems from the existence of abnormally dangerous working conditions.

In a case involving a strike by employees protesting faulty operation of a blower in the plant of a Richmond, Mich., company, the board ruled that the walkout was not a violation of an existing no-strike agreement and that the resulting discharge of the employees was unlawful.

The decision was based on Section 502 of the Taft-Hartley Act, which specifically provides that a walkout in protest of "abnormally dangerous conditions" is not a "strike" if conducted in "good faith."

In a concurring opinion, board member Rodgers said the decision is based on "competent, reliable objective evidence" as to working conditions and does not open "the door to 'quickie' work stoppages and walkouts at any time the employees so desire by the expedient of claiming that conditions of work are unsuitable."

The Taft-Hartley Act Works Both Ways

Nine union pipe fitters in Detroit, Mich., are using the Taft-Hartley Act against their own union in an effort to "protect their right to work at their trade."

The protesting members had been fined $2,500 apiece by their local (No. 636) for violation of the union constitution. Action of the local was upheld by the international union, although the fines were reduced to $1,425.

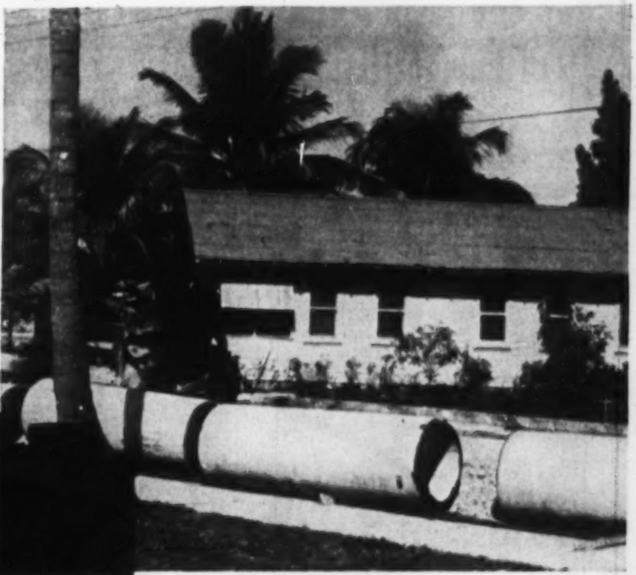
Non-payment of fines, it is said, will lead to expulsion from the union, and one of the disciplined members is now filing unfair labor practice charges as a result.

According to union officials, the constitutional provision that was violated is one prohibiting union members from publicly airing their grievances against the union until all avenues of recourse within the framework of the union "have been fully exhausted."

The trouble started when the local issued—and the accused members purchased—union bonds issued to finance the purchase of a building to be used as union headquarters. Ownership of the building was never achieved, although some $27,000 worth of bonds were sold, and title was allowed to revert to the original owners.

Local 636 officials deny any financial irregularities ever took place and claim that no union member will lose any money.

The union action was protested by the nine members, who made the mistake, the union said, of openly circulating literature demanding an accounting of the building purchase without first resorting to the union's own grievance procedure.



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OFFICIAL PROPOSALS

Bids: August 21, 1956

Pennsylvania Turnpike Commission Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:15 a.m., Eastern Daylight Saving Time, the 21st day of August 1956, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room #1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract:

Contract No. 575A. This project consists of surface treating the shoulders, including interchange ramps, approach lanes to service stations and other facilities of the Pennsylvania Turnpike System. The treatment shall conform to the specified requirements for Prime Treatment as indicated in the contract documents.

Beginning at Station 1176+50, Lehigh County to Station 952+32, Carbon County, a distance of approximately 19.4 miles and Station 13+0, Luzerne County to Station 660+00, Lackawanna County, a distance of approximately 32.3 miles, a total distance of 51.7 miles.

482,500 Gallons, DL-2 or DL-3 Bituminous Material applied to Shoulders.

Copies of specifications and Contract Documents are on file and open to public inspection on August 7, 1956, at the office of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania. Specifications and other contract documents will not be available before this date for mailing to prospective bidders.

Contract documents may be obtained from the Commission upon payment of ten ($10.00) dollars for each set. Copies of the Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy. No refund will be made for contract documents returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for contract documents and specifications.

The character and amount of bid security to be furnished by bidder is stated in the Instructiont to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
John F. Byrne
Secretary and Treasurer

Harrisburg, Pennsylvania
1 August 1956

Bids: August 27, 1956

Girard Drain Wayne County, Michigan

Advertisement for Bids

Sealed bids will be received by the Drainage Board for the Girard Drain, Christopher J. Mullé, Chairman, at the office of the City Clerk, Grosse Pointe Woods City Hall, 20775 Mack Avenue, Grosse Pointe Woods 36, Michigan, until 2:00 P.M. Eastern Standard Time, August 27, 1956 for the Girard Drain Project in the Cities of Harper Woods and Grosse Pointe Woods, Michigan.

The work included consists of furnishing and installing approximately 29,470 lineal feet of 12 inch to 12 foot sewer, both open cut and tunnel, together with necessary appurtenances and other incidental work.

Plans, specifications and proposal forms may be obtained from Christopher J. Mullé, Wayne County Drain Commissioner, 3523 Cadillac Tower, Detroit 26, Michigan. A deposit of $25.00 will be required for each set of plans and specifications. This deposit will be refunded upon return of the plans and specifications in good condition within 20 days after opening of the bids.

A certified check or a bidding bond executed by a responsible company as surety, payable to Drainage Board for the Girard Drain, in the amount of not less than five percent of the total bid price, must be submitted with each bid as a guarantee that the bidder, if his bid be accepted will enter into a contract with the Drainage Board for the work and will furnish the required performance and labor and material bonds, within 10 days after the award is made.

No bid may be withdrawn for a period of 70 days after opening of the bids.

The Drainage Board reserves the right to waive any informality in any bid, or to accept any bid, or reject any or all bids, or to award contracts by sections.

Drainage Board for the Girard Drain
By: Christopher J. Mullé, Chairman

George Jerome & Company
Consulting Engineers
1437 National Bank Building
Detroit 26, Michigan

Bids: August 20, 1956

St. Louis Park, Minnesota

ADVERTISEMENT FOR BIDS FOR COPPER METER HORNS AND CORPORATION STOPS. WATER METERS

NOTICE IS HEREBY GIVEN that the City of St. Louis Park, Minnesota will receive sealed bids up to 10:00 o'clock a. m. August 20, 1956 at the office of the City Manager, 5925 West 37th Street, St. Louis Park, Minnesota, at which time the bids will be opened and publicly read, for the furnishing of the following:

Quantity	Description
1000	Copper meter horns or meter yokes for the ⅝" x ¾" water meters
100	Copper meter horns or meter yokes for the ¾" x ¾" water meters
50	Copper meter horns or meter yokes for the 1" x 1" water meters
500	¾" Bronze corporation stops with straight coupling nut and Mueller thread
60	1" Bronze corporation stops with straight coupling nuts and Mueller thread
1000	⅝" all bronze water meters
100	¾" all bronze water meters
50	1" bronze water meters
12	2" all bronze compound water meters

Bids must be submitted on proposal forms for furnishing the above material in accordance with specifications on file in the office of the City Engineer. Said proposal forms and specifications are available on request.

Bids shall be firm and subject to acceptance by the City for 30 days after opening and must be accompanied by cash deposit, cashier's check, bid bond or certified check payable to the City Treasurer for not less than 5% of the total bid amount as security that the bidder will enter into contract with the City if the Bid is accepted within said thirty days. Bids shall be directed to the City Manager, securely sealed and endorsed upon the outside wrapper with a brief statement designating the material for which the bid is made.

The right to reject any or all bids is reserved.

TOM CHENOWETH
City Manager

CONTRACTORS WATCH THIS SECTION

for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

***RATE:* The rate for Official Proposal advertising is $2.10 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.**

***CLOSING DATE:* Friday 10:30 A.M. for issue dated the following Thursday.**

***SEND COPY TO:* Official Proposal Division,**
Engineering News-Record
330 West 42nd Street
New York 36, N. Y.

Bids: August 28, 1956

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Canal Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 23rd day of August 1956, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 353 Broadway, Albany, N. Y.						
Albany (Rte. 9W)	RC 56-64	Southern Boulevard, S.H. 9101	0.09	Bridge Repair & Misc. Work	$14,000 Plans $10	$250,000
Essex (Rte. 28N)	FARC 56-66	Alden Lair-Newcomb, Pt. 1 & 2, S.H. 5187 & 756 Proj. No. S210(1)	7.38	Asp. Conc., Opt. = 7.35 Mi. Misc. Work = 0.03 Mi.	$66,000 Plans $25	1,200,000
Essex	FASS 56-8	Tahawus-Schroon River, Pt. 2 Proj. No. S-1047(3)	1.67	Asp. Conc., Opt. = 1.60 Mi. Misc. Work = 0.07 Mi.	$16,000 Plans $10	290,000
Washington (Rte. 22)	RC 56-65	Cambridge-Salem, Pt. 3, S.H. 5316	0.07	Asp. Conc. Opt.	$900 Plans $10	17,000
DISTRICT No. 2, L. Ketchum, 109 No. Genesee St., Utica 1, N. Y. (Dist. Engr.)						
Herkimer	US-91	Lock 17 Erie Canal at Little Falls	....	New Lower Gate New Operating Machinery & Other Misc. Work	5% of Bid Plans $25	Not Published
Oneida	M-56-5	Alder Creek Dam on Black River	....	Repairs to Dam (Resurface Spillway with 12" Conc. & other Misc. Work)	$7,000 Plans $10	131,395
DISTRICT No. 3, Wm. Robinson, District Engineer, 301 E. Water St., Syracuse, N. Y.						
Onondaga (Rte. 5)	FARC 56-53 RC56-54	Elbridge-Camillus, Pt. 1, S.H. 5080 Camillus-Fairmount, Pt. 1, S.H. 5318A & 5318 Camillus-Fairmount, Pt. 2, S.H. 5016 Proj. No. F-446(5)	5.66	Asp. Conc. Ty. 1A	$27,000 Plans $10	461,000
Onondaga (Rte. 298)	FARC 56-47 FASH 56-3	Syracuse-Bridgeport, Pt. 1, S.H. 672 Syracuse-Bridgeport, SH 672A Syracuse-Bridgeport, Pt. 3 Proj. No. U-UG-994(5)	2.70 (2.11 Acc.)	9" Cem. Conc. Pavt. 2 at 37′ Var. Wide = 3.59 Mi. Asp. Conc. Ty. 2A = 1.22 Mi. R. C. Box Culv. Br. 25′ R. R. Sep. I-Beam 103.7′	$140,000 Plans $25	2,570,000
Oswego (Rte 57)	FAC 56-10	City of Fulton: North-South Arterial (First, Fourth & Second St.) Proj. No. U-583(7)	2.49 (0.42 Acc.)	Asp. Conc. Ty. 2A = 1.77 Mi. 9" Cem. Conc. Pavt. 24′-52′ Var. Wide = 0.72 Mi. Misc. Work = 0.42 Mi.	$52,000 Plans $15	599,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, N. Y.						
Orleans (Rte. 31)	FARC 56-56	Medina-Albion, S.H. 5469 Albion-Fancher, S.H. 5422 Proj. No. F-1037(2)	6.56	Asp. Conc., Opt.	$21,000 Plans $10	382,000
DISTRICT No. 6, J. H. Thomas, Distict Engineer, 30 W. Main St., Hornell, N. Y.						
Steuben (Rte. 70)	FARC 56-57	Big Creek, Pts. 1, 2 & 3 S.H. 906-1000 Proj. No. F-867(3)	5.19	Asp. Conc., Opt.	$22,000 Plans $10	300,000
DISTRICT No. 8, K. G. Rauer, Acting District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Columbia (Rte. 22)	FERC 56-58	Copake Iron Works-Copake S.H. 5645 Proj. No. ER-29(1)	0.09	Slope Protection	$775 Plans $10	14,000
Dutchess (Rte. 22)	FERC 56-59	Amenia-Wassaic, S.H. 537 Amenia-Sharon Station, S.H. 712 Proj. No. ER-23(1)	0.30	9" Cem. Conc. Pavt. 24′ Wide	$4,500 Plans $10	82,000
Ulster	BA 56-1P	West Approach: Kingston-Rhinecliff Bridge (Cont. 6)	0.31	9" Cem. Conv. Pavt. 36′-68′ Wide	$6,500 Plans $10	119,000
Ulster	BA56-3TP	West Approach: Kingston-Rhinecliff Bridge	0.37	Bit. Mac. Pen. Method Asphalt	$800 Plans $10	14,000
Ulster	FESS 56-7	Spring Glen Road Proj. No. ER-27(3)	0.28	Asp. Conc., Opt.	$4,700 Plans $10	87,000
Ulster (Rte. 209)	FERC 56-62	Kingston-Ellenville, Pt. 3, S.H. 141 Proj. No. ER-60(1)	0.15	Restoration of Stream Channe	$2,700 Plans $10	50,000
DISTRICT No. 9, J. C. Frederick, District Engineer, 71 Frederick St., Binghamton 21F, N. Y.						
Schoharie (Rte.7)	FARC 56-60	Vrooman-Howes Cave, S.H. 5195 Central Bridge-Quaker Street, Pt. 1, S.H. 5619 Proj. No. F-655(8)	3.47	Asp. Conc., Opt.	$12,000 Plans $10	214,000
Sullivan (Rte. 209)	FERC 56-67	Wurtsboro-Ellenville, S.H. 8080 Proj. No. ER-34(1)	0.76	Asp. Conc., Opt. 2 Prestressed Precast Conc. Brs. 41′ & 36′	$15,000 Plans $10	286,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

U. S. Government

Bidding material for financing, constructing and selling to the Government on an installment purchase basis, the United States Public Health Service, Communicable Disease Center, North Clifton Road, Atlanta, Georgia, will be available for distribution on or about August 9, 1956. Applications from parties interested in bidding on this project should be filed promptly with this office or the Regional Office named below. The bidding material will be available in three forms: (a) for financing, constructing and sale of the building; (b) for financing construction and sale of the building; (c) for construction of th building. Applications must state the form in which the bidder is interested. Bidding material will not be included in form (b) unless specifically requested by the bidder. Bidding material will not be furnished to subcontractors or to producers of materials or equipment. Bids will be opened at the place and on the date named in the bidding and contract forms which will be about 7 weeks after the bidding material is available for distribution. The estimated cost of the entire project, for purposes of financing is $11,555,000.00. Bidding material will be available at Room No. 1304, General Services Building, 19th and F Streets, N. W., Washington 25, D. C., Phone EXecutive 3-4900, Extension 2397, and at the office of the Deputy Regional Commissioner, Public Buildings Service, Region 4, Room 844, Peachtree-Seventh Building, 50 Seventh Street, N. E., Atlanta 5, Georgia. Commissioner of Public Buildings, General Services Administration.

Sealed bids for Steam Tunnel, Etc., for Maximum Security Building, Saint Elizabeths Hospital, Washington, D. C., will be received until 2:00 P.M., EDST Sept. 5, 1956 in Rm. 7100 GSA Regional Office Bldg., 7th & D Sts., S. W., Washington, D. C., and then publicly opened in Rm 7100. Bidding material may be obtain from Public Buildings Service, Rm 1304 GSA Bldg., 19th & F Sts., N. W., Washington, D. C. Ex. 3-4900, Extn 2397 Commissioner of Public Buildings, General Service Administration

Bids: August 23, 1956

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Daylight Saving Time, on August 23, 1956, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON RT. 17 EXPRESSWAY, TYLERS SWITCH-HANCOCK, TOWNSHIP OF HANCOCK, DELAWARE COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-94

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.

(b) Mr. J. C. Federick, District Engineer, 71 Frederick Street, Binghamton, New York.

(c) Mr. William M. Trainer, Associate Contract Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $6575.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $350.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF
PUBLIC WORKS.

Bids: August 23, 1956

The Illinois State Toll Highway Commission

NORTHERN ILLINOIS TOLL HIGHWAY
NORTH ILLINOIS ROUTE
CONTRACT N-2A

ADVERTISEMENT FOR BIDS

Sealed Proposals will be received by The Illinois State Toll Highway Commission at the office of the Commission, 20 North Wacker Drive, Chicago 6, Illinois, until 11:00 o'clock A.M., Central Daylight Savings Time (10:00 o'clock A.M., Central Standard Time) on Thursday, August 23, 1956, and immediately thereafter will be taken to the Louis XVI Room of the Sherman Hotel, Randolph and Clark Streets, Chicago, Illinois, and publicly opened and read aloud.

Prospective bidders are hereby informed that the first sentence of Section 314a 38 of Chapter 121 of the Illinois Revised Statutes provides that—

> "All contracts let for the construction of any work authorized to be done under the provisions of this Act where the amount thereof is in excess of the sum of $1,000, shall be let to the lowest responsible bidder or bidders on open, competitive bidding after public advertisement made at least fifteen days prior to the opening of bids, in a newspaper of general circulation published in each of the seven largest cities of the State, as determined by the last preceding Federal census in such manner and at such intervals as may be prescribed by the Commission."

The work to be done under this Contract shall be completed in four hundred forty (440) calendar days after the date specified in the Notice to Proceed, and consists of:

The grading, drainage, paving, the construction of appurtenances, and the erection of precast concrete bridges for approximately 4.775 miles of the Northern Illinois Toll Highway in Construction Section N-2A thereof, beginning at a point about 1900 feet south of U. S. Route 20 at Northern Illinois Toll Highway Centerline Station 195+00 in Rockford Township, Winnebago County, Illinois, and extending northerly to a point 3135 feet south of Harlem Road at Northern Illinois Toll Highway Centerline Station 447+0972 in Harlem Township, Winnebago County, Illinois.

The approximate quantities of the principal items of work are as follows:

Roadway excavation	1,100,000 Cu. Yds.
Selected subgrade	60,000 Cu. Yds.
Granular Subbase	100,000 Cu. Yds.
10" Reinforced PCC ment	180,000 Sq. Yds.
3" Bituminous Concrete Shoulders	105,000 Sq. Yds.
Guard Rail (Roadway)	8,300 Lin. Ft.
Right-of-Way Fence	45,000 Lin. Ft.

Copies of the Plans, Specifications, Proposal Forms and other Contract Documents for said Contract are available for public inspection or purchase at the office of the Chief Engineer, The Illinois State Toll Highway Commission, Room 1654, 20 North Wacker Drive, Chicago 6, Illinois. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

Standard Specifications for Northern Illinois Toll Highway	$5.00
Plans, Cross-Sections, Special Provisions, Proposal Forms and Contract Documents (except Standard Specifications) per set, per Construction Section	$30.00

A Bidders' Conference will be held in the Assembly Room, Suite 631, 20 North Wacker Drive, Chicago, Illinois, at 10:00 o'clock A.M., Central Daylight Savings Time, on Thursday, August 16, 1956.

All Proposals must be on the forms prescribed by the Commission; and must comply with the terms and conditions set forth in the Contract Documents.

A Contractor's Financial Statement and Experience Questionnaire, a Plan and Equipment Questionnaire, and a Statement of Current Contractual Obligations on forms supplied by the Commission will be required from all bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5) per cent of the total amount shown in the Proposal for the Contract, provided that the Proposal Guaranty will not be required in an amount exceeding $250,000.00 for any one contract. The Proposal Guaranty shall be in the form of an acceptable bid bond or a bank draft, certified check or cashier's check drawn on a solvent bank.

In accordance with the provisions of an Act of the General Assembly of the State of Illinois entitled "An act regulating wages of laborers, mechanics and other workmen employed under contracts for public works," approved June 26, 1941, as amended, the Commission has made an investigation and finds that the general prevailing wage rates in the locality in which the Work covered by this Contract is to be performed are as follows:

TRADE AND CLASSIFICATION	Hourly Wage Rate	
	Straight Time	Over-time
BRICKLAYERS	$3 50	(a)
CARPENTERS	3 00	(a)
CEMENT MASONS	3 00	(b)
CEMENT MASONS, FORM SETTERS	3 10	(b)
IRON WORKERS, FENCE ERECTORS	3 25	(a)
OPERATING ENGINEERS ON		
Power shovels, cranes, graders, diggers, scoops, pavers, double drum mixers or 27E, pumperetes, truck winches	2 95	(b)
Pavers, mixers 27E or less, rollers, spreaders, truck winches with "A" frames, power blades, motor patrols, tournapulls, highlifts, subgraders, finishing machines, material handlers, bull floats, tractors, bulldozers	2 75	(b)
Boilers, curb, sidewalk and culvert mixers, dinky locomotives, form graders, air compressors, welding machines, pumps, manually operated blade graders, firemen and oilers	2 30	(b)
LABORERS		
Form Setter	2 45	(e)
Air Hoist operators, pebble placer operator, mortarmen	2 20	(e)
Asphalt laborer and helper, tampers, smoothers, plant, street paving, grade separation, bricklayer tenders, scaffold men, top laborers	2 10	(e)
Cement carriers	2 25	(e)
All other laborers	2 35	(e)
PAINTERS		
Sign	2 90	(e)
Sign helper	1 90	(e)
Brush	2 80	(e)
Open Structural Steel	3 05	(e)
PIPE FITTERS, PLUMBERS, CAULKERS	3 40	(c)
TEAMSTERS AND CHAUFFEURS ON		
Trucks over 16 cu. yd. capacity, oil distributors, 1 man operated	2 85	(e)
Six Wheel Trucks, 8 cu. yds. up to and including 16 yds. capacity	2 65	(e)
"A" Frame Trucks when used for transportation purposes	2 55	(e)
Oil Distributors, 2-man operation, mixer trucks over 3 cu. yds.	2 50	(e)
Mixer trucks under 3 cu. yds.	2 30	(e)
Four Wheel Trucks over 5 cu. yd. capacity	2 40	(e)
Four Wheel Trucks under 5 cu. yd. capacity, service trucks, air compressors, welding machines, pickup trucks and tractors, batch trucks 2-34E batches or less, mechanic helpers, greasers, teamsters, warehousemen, dockmen	2 25	(e)
All Others	2 45	(e)

(a) Double time for all overtime.

(b) Time and one-half for all time in excess of eight hours per day and forty hours per week. Double time for Sundays and holidays.

(c) Time and one-half for all time in excess of eight hours per day (8 a.m. to 4:30 p.m.) and 40 hours per week, Monday through Friday. After 8 p.m. Monday through Friday at double time. Saturday time and one-half to 4:30 p.m. Double time after 4:30 p.m. Saturday, Sundays and holidays.

(e) Time and one-half for over 8 hours in any one day and for Saturday. Double time for Sundays and holidays.

The award of the above Contract, if any award be made, will be to the lowest responsible bidder or bidders. The Commission reserves the right to reject any or all proposals and to waive technicalities.

THE ILLINOIS STATE TOLL
HIGHWAY COMMISSION
BY Austin L. Wyman, Chairman

Chicago, Illinois
August 2, 1956.

Bids: August 28, 1956

Power Authority of the State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF
CARRIER CURRENT EQUIPMENT
SPECIFICATIONS NO. PA-5-14026
ST. LAWRENCE CONTRACT NO. P40

NOTICE TO CONTRACTORS: THE POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture and furnishing of carrier current equipment and appurtenances and delivery thereof, f. o. b. cars at destinations, in the following ways:

(1) If brought in person on the day of receiving bids until 10:30 A.M. Eastern Daylight Savings Time, on the 28th day of August, 1956, Hearing Room C, on the 6th floor, 270 Broadway, New York, New York.

(2) If mailed in until 10:15 A.M. Eastern Daylight Saving Time on the 28th day of August, 1956, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposals will be publicly opened and read aloud at the time and at the address given in (1) above. Bids will be entertained for the carrier current equipment and appurtenances in accordance with the bidding schedule. Installation will be done by Others but services of erecting engineers shall be provided by the manufacturer if and when required. Delivery of the carrier current equipment and appurtenances will be required January 1, 1958.

Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Ten ($10.00) Dollars for initial set of contract documents and Five ($5.00) Dollars per set for each additional set, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. Bid deposit will be required with each bid in the amount not less than 10% of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-5-14026

OFFICIAL PROPOSALS

Bids: August 21, 1956

Pennsylvania Turnpike Commission Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a. m., Eastern Daylight Saving Time, the 21st day of August 1956, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room #1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract:

Contract No. 575. This project consists of surface treating the shoulders, including interchange ramps, approach lanes to service stations and other facilities of the Pennsylvania Turnpike System. The treatment shall conform to the specified requirements for Initial Treatment as indicated in the contract documents.

Beginning at Station 20+00, Montgomery County to Station 1176+50, Lehigh County, a distance of 47.6 miles and from Station 952+32, Carbon County to Station 1146+22, Carbon County, a distance of 9.0 miles, a total distance of 56.6 miles.

The quantities of the principal items are as follows:

101,750 gallons, Class H-1 Bituminous Material applied to Shoulders
101,750 gallons, Class C-2 Treated Bituminous Material applied to Shoulders
8,000 Tons, Pennsylvania #2B Chips, (dark) applied to Shoulders

Copies of specifications and Contract Documents are on file and open to public inspection on August 7, 1956, at the office of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania. Specifications and other contract documents will not be available before this date for mailing to prospective bidders.

Contract documents may be obtained from the Commission upon payment of ten ($10.00) dollars for each set. Copies of the Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy. No refund will be made for contract documents returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for contract documents and specifications.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE COMMISSION
John F. Byrne
Secretary and Treasurer

Harrisburg, Pennsylvania
1 August 1956

U. S. Government

Department of Commerce, Bureau of Public Roads, July 23, 1956. SEALED BIDS will be received at the office of the Park Superintendent, Homestead, Florida, until 11:00 A.M., E.S.T., AUGUST 23, 1956, for Project 1A8-2A1, Everglades National Park, Dade County, Florida. Grading, draining, processing oolite rock base, bituminous prime coat and surface treatment, seeding, and other work, on the Park Road from Joree Hammock Road to Concrete Bridge and on the Mahogany Hammock Road from the Park Road to Mahogany Hammock. Length: 10.306 miles. The approximate quantities of the more important lems are: 62,000 cu. yd. Stripping and Storing Topsoil, 397,000 cu. yd. Excavation for Borrow, and 154,000 sq. yd. Shaping and Compacting Base. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the offices of the Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, and Gatlinburg, Tennessee. H. J. Spelman, Division Engineer.

GOVT. OF DIST. OF COL., DEPT. OF SAN'Y. ENG'G., July 26, 1956. SEALED PROPOSALS will be recd. in Rm. 404, 499 Pa. Ave., N.W., Wash. 1, D.C., until 2 PM, EDT, Sept. 19, 1956, and then publicly opened and read for constr. of Section No. 4 of E. Branch Piney Br. Trunk Sewer in Kansas Ave. and 5th St. from Varnum St. to Ingraham St., N.W., consist. of 1,555 lin. ft. 14' 6"; 2,370 lin. ft. 14' 0"; and 825 lin. ft. 3' 6" to 10' 6" dia. brick and reinf. concr. masonry sewer (IN TUNNEL); and 395 lin. ft. 12" to 5' 6" dia. brick and reinf. concr. masonry sewer and 165 lin. ft. 12" dia. cast iron watermain (IN OPEN CUT). Proposal forms, plans and specns. obtainable from Supervisor, Contr. & Bond Section, Procurement Office, D. C., Rm. 406, 499 Penn. Ave., N.W., upon deposit of a certified check for $50.00 per set, payable to Collector of Taxes, D. C. (Tel. NA 8-6000, Ext. 2378).

BRIDGE ENGINEERS

Field Engineers, Designers and Draftsmen. Pleasant working conditions. Interesting projects. Qualified graduates may apply in person or write ful stating education and experience.

D. B. STEINMAN, *Consulting Engineer*
117 Liberty St. New York 6, N. Y.

REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
New York: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Assistant Professor—To teach undergrad courses in structures and applied mech. Salary depends on qualifications of Civil Eng., Univ. of No. Dakota. Grand Forks, N. Dak.

Engineers for municipal and industrial water supply, sewerage and treatment projects. Opportunities for permanent connection with long established firm of consulting engineers in mid-west. Both E.I.T.'S and engineers considered. Full information and references in first letter requested. P-2316, Engineering News-Record.

Civil Engineer by Consultant in general civil engineering practice: Excellent opportunity for future advancement. Location in growing community in central Illinois. Salary open. Please furnish complete resume, including salary desired. P-2491, Engineering News-Record.

Inspectors wanted. Excellent opportunity for qualified personnel in one of the fastest expanding industrial areas of the South. Soils, asphalt, welding, pressure vessel, structural steel, millwright, paint, electrical and telephone. State experience, expected salary and references. Applications answered and kept confidential. P-2514, Engineering News-Record.

Assistant Professor and Instructor in Civil Engineering needed by fully accredited and attractively located University in the Southeast. Principal subjects, mechanics, materials, and surveying. Instructor may work toward M.S. degree while teaching full time. Salaries open, depending upon qualifications. P-2516, Engineering News-Record.

Designers—Highways and Bridges—to work in New York office. Top rates for qualified men. Write in detail to: Farkas & Barron, Consulting Engineers, #5 Beekman Street, New York 38, N. Y.

EMPLOYMENT OPPORTUNITIES

(Continued on pages 146-149)

CONSTRUCTION MANAGER

Nationally known metals producer expanding Engineering Division to include construction. Position involves direction of all construction including initial planning with operating divisions, land location and purchase, negotiating construction contracts, handling construction through resident engineer. Must have thorough experience in construction engineering, field supervision, contract negotiation and be capable of executive management. Headquarters in Mid-Atlantic state. Excellent opportunity for executive desirous of associating with stable, top flight U. S. Manufacturer. In confidence give age, education, experience and salary required.

P-2620, Engineering News-Record
Class. Adv. Div. P.O. Box 12, N.Y. 36, N.Y.

POSITIONS VACANT

Wanted: Civil Engineers for permanent work on bridges in both design and field offices of established consulting engineer. Please send education and experience resume, references, and salary requirement. P-2368, Engineering News-Record.

Associate Professor of Civil Engineering—BS & MS in Civil Engineering to teach engineering mechanics, surveying, highway & reinforced concrete. Salary $5400 for nine months. Location—Texas. P-2297, Engineering News-Record.

Civil Engineers to work with consulting engineering firm. Long established municipal consulting firm desires to secure civil engineers for permanent positions. Experience in some phase of municipal Engineering required. Offices located in very desirable small college community in Colorado area. Expansion of firms operations provide unlimited opportunities for advancement for properly qualified engineers. Firm desires to employ engineers with from one to fifteen years experience. Salaries $5,100 to $7,200. Please give experience and full details in reply. Replies will be held confidential if requested. P-2374, Engineering News-Record.

POSITIONS VACANT

Wanted: Highway designers, draftsmen and field men for highway work. Location Northeast New Jersey. P-2462, Engineering News-Record.

Construction engineer with college degree in engineering or equivalent, practical experience in light construction (shopping centers, motor hotels). Job consists of estimating, purchasing and general supervision of construction. Excellent and permanent opportunity. Give age, experience, salary desired and references. P-2465, Engineering News-Record.

Wanted — Heavy and highway construction superintendent, capable of running large grading, drainage and bridge work. State experience, age and educational background. P-2473, Engineering News-Record.

Civil Engineers, experienced in design of sewerage systems and treatment plant. Excellent opportunity for young sanitary major in expanding well-established firm. Location southern Connecticut. Genovese & Associates, 294 Elm Street, New Haven, Connecticut.

(Continued on following page)

EMPLOYMENT OPPORTUNITIES

The Advertisements in this section include all employment opportunities—executive, management, technical, selling, office, skilled, manual, etc.

NATIONAL
COVERAGE

Positions Vacant
Positions Wanted
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The advertising rate is **$28.25 per inch** for all advertising appearing on other than a contract basis. Contract rates quoted on request.

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Send NEW ADS and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36, N. Y.

POSITIONS VACANT

(Continued from preceding page)

Construction Mgr. CE. Must have metropolitan labor following, ability to run multi-million business for Bergen Co. builders. Write details, salary. P-2440, Engineering News-Record.

Salesman Rockland County, N. Y., road building materials and construction. Old established business requires able young man with car. Experience preferable but not required. Interest in bituminous pavement construction essential. Salary plus expenses. Write Box 120, Haverstraw, New York.

Young Man — (25-40) — Civil Engineer for bituminous road work—costs, etc. Car furnished; steady employment and advancement, wages commensurate with ability. Write Box 120, Haverstraw, N. Y.

Instrument men, party chiefs, asphalt & soil inspectors—O'seas airbase, mild climate. Call or write Mr. Lambert, Patchen & Zimmerman, 120 Greenwich St., NYC RE 2-4187.

Engineering graduate with experience in the testing and control of placement of soils, concrete or asphalt mixtures for work immediately abroad and in New England for an old established engineering organization. Give full details of experience and education. Salary range $6,000. to $10,000 per year. P-2356 Engineering News-Record.

Designers—Steel, Concrete, Electrical Piping. Air-Cond., Power Plants & Industrial Bldgs. Marbarry Corp., 120 Greenwich St., N.Y.C. Rector 2-3749.

Gen'l Superintendent qualified engineer for North Jersey contractor, must have proven experience on industrial buildings & gov't. projects. Salary open. P-2608, Engineering News-Record.

Soils Engineer—Wanted by large engineering and construction organization for work on large hydro-electric development. Position also available in New York office. Please send complete resume to: P-2603, Engineering News-Record.

Structural Engineer, experienced designer reinforced concrete and steel. Permanent position with established firm. Write complete details, education, experience, salary expected to h J. Ross Associates, 3047 Biscayne Blvd., Miami, Fla.

Designers-Detailers—Well established consultant located in New York State has permanent openings for designers and detailers experienced in structural steel and reinforced concrete structures for highways. Send resume to P-2572, Engineering News-Record.

Estimator: General Building Construction, permanent position in home office of established firm. Should be experienced in take off and pricing excavation, grading, concrete work, masonry, carpentry. Engineering degree preferred but not required. Reply giving complete qualifications and picture. Location Wilmington, Delaware. P-2584, Engineering News-Record.

Construction Superintendent: Experienced in Industrial, Commercial and Public projects. First class man desired must be cost conscious with ability to deal with Architects and Owners. Reply giving qualifications, availability, salary expected. Location Delaware. P-2587, Engineering News-Record.

Project Manager—with wide experience in heavy construction wanted by internationally known contractor. The man we want must be capable of taking complete charge of projects involving tunnels, dams, powerhouses, etc. This is a permanent position for the right man. Salary is fully commensurate with the responsibilities required. Write giving full particulars of experience background. P-2594, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT and MECHANICAL SUPERINTENDENT

Construction Superintendent for one-half million dollar industrial building project in South Florida. This is an excellent opening for permanent position in new Miami branch office of established general contractor. Prefer engineer with at least seven years' experience, partly field, partly estimating, under thirty-five years. Salary open, with hospitalization, profit sharing plan and other benefits. Prefer man presently employed but wanting better opportunity and to locate permanently in the South Florida area and is able to assume a share of management in aggressive rapidly growing company. Present employer will not be contacted without your approval and expenses will be paid qualified applicants for local interview.

Similar position open in Atlanta, Georgia office.

Also position for man experienced in the mechanical contracting field specializing in fuel handling systems for petroleum industry, jet fuel, natural gas, water and sewer lines. Field and office experience desired.

P-2495, Engineering News-Record
Class. Adv. Div. P.O. Box 12, N. Y. 36, N.Y.

POSITIONS VACANT

Wanted—Young man, age 23 to 35, with water works experience to work for growing private water utility in active Illinois city. Excellent opportunity as assistant to manager. Salary open. Please submit complete resume stating education, age, experience, salary desired and date of availability. P-2609, Engineering News-Record.

Supervisory positions for High Dam Construction in India. Former Supervisory employees or those now in supervisory positions who have worked with me on projects in the past and are interested in foreign work. Contact me by letter: M. H. Slocum, 504 East Pine Street, Alhambra, California.

EMPLOYMENT SERVICES

Salaried personnel, $5,000-$30,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L. P. O. Box 674, Manchester, Vermont.

EMPLOYMENT AGENCIES

Wanted Engineers, Designers, Draftsmen-Structural, Architectural, M.E., C.E., E.E., and Ind. also Teachers and Chemists. Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

Civil Engineer, (soils, concrete), BSCE, 28, experience in construction engineering, supervision and control of earthwork and concrete. Desires permanent position. PW-2508, Engineering News-Record.

Civil Engineer age 39 with 18 years experience in heavy construction and municipal work, desires to establish permanent location in municipal or other work on completion of present construction job as resident engineer. Good record, excellent references. Available Sept. PW-2487, Engineering News- Record.

Registered Civil Engineer and Land Surveyor, age 31, extensive experience in highway design, specializing in drainage and hydraulics. Now employed in Central America. Present salary $16,800. Scheduled for re-assignment to the U. S. but wishes to continue foreign work. Good reading and speaking knowledge of Spanish. PW-2525, Engineering News-Record.

Structural Engr. P.E. license 15 yrs. exp. design & superv. bldgs., bridges & misc. structures, seeks supervisory position. Boston area preferred. PW-2555, Engineering News-Record.

(Continued on page 148)

WANTED

EXECUTIVE SECRETARY FOR THE PRESTRESSED CONCRETE INSTITUTE

The Prestressed Concrete Institute wishes to hire a man with executive ability to work out of their temporary headquarters in Tampa, Florida. Extensive traveling will be required and duties will include membership drives, organization of conventions and programs sponsored by the Institute, coordination of technical information and production of publications and promotion.

Technical background not necessary.

Reply with resume and recent photo to:

MR. DOUGLAS P. CONE
Secretary and Treasurer
Prestressed Concrete Institute
P. O. BOX 11336
TAMPA, FLORIDA

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STAFF ENGINEER
MAINTENANCE SERVICES

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To assist and advise operating management on all maintenance services and practices in major oil installation located in Saudi Arabia.

Must be graduate engineer with minimum of 10 years' planning and operations experience in heavy industrial and refinery installations. Proven supervisory ability and thorough knowledge of maintenance craft methods and equipment required. Minimum salary $1000 monthly plus allowances and generous benefits. Excellent promotional opportunities.

Write outlining personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 183

**ARABIAN AMERICAN
OIL COMPANY**
505 PARK AVENUE
NEW YORK 22, NEW YORK

ENGINEERS
DESIGNERS
DRAFTSMEN

**BRIDGES
HIGHWAYS
INDUSTRIAL**

Please submit complete resume giving education, experience, salary desired, and date of availability.

R. W. BOOKER & ASSOCIATES
Consulting Engineers
1722 Olive St., St. Louis 3, Mo.

ENGINEERS

Long established firm of consulting engineers with world-wide practice needs both beginners and experienced civil, electrical, mechanical, and foundation engineers for interesting work on large dams, powerplants, and river control works. Permanent positions. Liberal employee benefits. Starting salaries dependent on qualifications. Please send complete resume to Hugo Niemi, Personnel Manager.

HARZA ENGINEERING CO.
400 W. Madison St. Chicago 6, Ill.

AIR POLLUTION CONTROL OFFICER

(Southern California)

New Position; New and Growing Field
$647 start; periodic increases to $786
Also annual review of salaries
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Write

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Drainage Engineers

FOR OFFICE WORK IN ST. LOUIS ON HIGHWAYS EXPRESSWAYS AND ASSOCIATED CIVIL WORKS

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PLEASE WRITE FULLY TO OR INQUIRE AT

SVERDRUP & PARCEL ENGINEERING CO.
1134 LOCUST ST. ST. LOUIS 1, MO.

ACCOUNTANT
For General Contracting Firm

The man we are seeking is presently employed with a small General Contracting and Building firm and desires to make a change for a future with a larger old established firm operating east of the Mississippi River. He must have ambition, be dependable, sober and have a pleasant personality so as to meet and talk with people. He should have proven business acumen and be able to supervise and handle personnel. His experience should consist of Office Management and general supervision or handling of the overall accounting procedures. Age 30 to 35. College graduate in Business Administration preferable. If you believe you can qualify, write and give complete resume, including references and experience.

P-2307, Engineering News-Record
Class. Adv. Div. P.O. Box 12, N.Y. 36, N. Y.

OPPORTUNITIES UNLIMITED

2 — SOILS ENGINEERS — Master's degree preferred — at least 10 years practical experience, emphasis on bridge foundation and highway soils work.

2 — SOILS TECHNICIANS — at least 3 years practical experience.

2 — CONCRETE ENGINEERS — heavy experience in design and control of concrete mixes.

1 — BRIDGE ENGINEER — heavy experience on field inspection and layout.

Projects starting approximately September 1, 1956. Can lead to permanent management position in well established growing company. Many employee benefits. Salary open. Send complete resume and photo to:

TESTING SERVICE CORP.
146 W. Home Ave.
Villa Park, Illinois

ENGINEERS
2 to 5 Years' Experience

1	2
Industrial steel and reinforced concrete design.	Furnace and pressure vessel equipment design.

Responsible positions with a long-range future are immediately available. Recognizing the need for the professional growth of the individual engineer, Kellogg provides a variety of stimulating assignments and encourages membership in engineering societies and associations. As a result, the company has grown steadily for 55 years to become a worldwide leader in the petroleum and chemical plant field. The most modern facilities are available in a brand new air-conditioned building, centrally located convenient to transportation serving suburban residential areas.

Please send resumes, including salary requirements, to R. L. Slocom. All inquiries in confidence.

M. W. KELLOGG CO.
711 Third Ave. New York 17, N. Y.

SALES ENGINEERS

A major steel company has need for sales engineers to promote and sell fabricated products in middle Atlantic states. Excellent opportunities for men 25 to 30 years old with engineering background and a desire for sales work. Attractive starting salary with company car, expenses and bonus plan.

P-8324, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS

PROCESS & PROJECT

PROJECT MANAGERS

10 years' experience in Project Supervision on chemical, atomic energy, oil refinery or metallurgical engineering projects. Must be graduate Engineers. These are key positions with an established firm and will pay high salaries to properly qualified men. We will pay relocation expenses. Replies in confidence.

Ideal working conditions in air-conditioned offices. Liberal company benefits include: 9 paid holidays, paid vacation, profit-sharing plan, insurance, sick leave, payroll saving plans, recreational activities and educational programs.

WRITE GIVING QUALIFICATIONS TO:

CATALYTIC
Construction Co.
1528 WALNUT STREET
PHILA. 2, PA.

SPECIFICATION WRITER

STRUCTURAL ENGINEER

ESTIMATOR

DRAFTSMEN

Experienced personnel wanted for permanent positions with long-established sanitary engineering consulting firm. Life insurance and other benefits.—*Salaries open.*

BOGERT and CHILDS
145 East 32nd St. New York 16, N. Y.

MATERIALS ENGINEER

Mature man with minimum of 15 years experience in concrete and materials control required by consulting engineer for toll highway construction near Chicago. Top salary, excellent working conditions.

Send resume to

Jospeh K. Knoerle & Associates, Inc.
155 N. Wacker Drive
Chicago 6, Ill.

WEST COAST

Prestressed Concrete Manufacturer

Desires engineers, 25-40, for design, estimating and sales of prestressed concrete. Also openings for engineers or experienced production men in prestressing plant. Vacancies in San Francisco, or Los Angeles-Long Beach office and plant to be established shortly. Wonderful opportunity with leading established company in a rapidly expanding field. Salary commensurate with experience. Write giving background and experience. All replies confidential.

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112 Market Street, San Francisco, California

Engineers Architects

Highway—Bridge
Designers—Draftsmen
Soils Engineer
Irrigation Designer
Construction Engineer (Irrigation)
Architectural Designers—Draftsmen
Ink Tracers—Computors
Civil Engineering Draftsmen

Air Mail Resume TO R. L. SHAW, *Personnel Director*

MICHAEL BAKER, Jr., Inc.

BAKER BLDG. ***Consulting Engineers*** **ROCHESTER, PA.**

WANTED:

Experienced Licensed Civil Engineer, with at least five (5) years Penna Highway experience. Immediate employment. Long Highway program with reliable contractor. Location Eastern and Central Penna.

P-2588, Engineering News-Record
Class.Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

POSITIONS WANTED

(Continued from page 146)

Mr. Contractor, Do You Need: 1 Additional work and greater profits? 2. Financial or technical assistance? 3. Management relief? I can help you increase your volume and margin of profits! Young, capable, experienced, energetic, ambitious management executive will consider position with small or medium sized contractor with ambition and potential for growth. PW-2438, Engineering News Record.

Project supt. engineer background twenty years bridges, foundations, highways, bldgs. Desire profit share contract. Southeast U. S. PW-2355, Engineering News-Record.

Sales Engineer, BSCE, under 30. Background in heavy construction. Wishes to join growing construction equipment or materials company. PW-2504, Engineering News-Record.

Project Mgr. or Gen. Constr. Supt. refinery, power plant, chem. plants, gas transmission etc. Also some A.E.C. College background, good following. Reply to PW-2528, Engineering News-Record.

Construction Manager. Industrial constr. Civil Engr., job-planning, cost-control, estimating & management specialist. Now situated Phoenix. Confidential replies. Reply PW-2527, Engineering News-Record.

Construction superintendent over 20 yrs. experience extensive industrial, commercial and finished projects. Engineer. Anywhere. Salary fitting. PW-2436, Engineering News Record.

Young executive engineer 32—aggressive, ambitious, tactful, BSCE. 7 yrs. field exper. heavy industrial constr. Knows costs, planning, field management. Present salary $8,000. Desires opportunity. PW-2361, Engineering News-Record.

City Engineer and Building Commissioner of city of 35,000 in Illinois desires to make change, South preferred. Sixty-six years old, many years service Federal, State and municipal. Qualified for above jobs or city manager. Hold Illinois license, member American Society of Civil Engineers. PW-2377, Engineering News-Record.

Construction Management—BSCE, 36, excellent experience in heavy construction including field supervision, estimating, bidding and management of concrete structures, earthworks and powerplants, interested in connection with moderate size contractor with growth possibilities in Rocky Mtn. or Southwest. Can consider participation arrangement. PW-2515, Engineering News-Record.

Construction Executive: Fully qualified. Seventeen years in all phases of commercial and industrial construction. Estimating to completion, contract negotiation, project management. Age 40. Domestic or foreign. Seek new permanent connection with possible future advancement. Minimum $14,000. PW-2360, Engineering News-Record.

Construction Executive. Sound field and office experience on Buildings and heavy construction, qualified to handle all phases of contracting, seeks new connection as project manager, chief estimator or similar position requiring top man. Now employed. Minimum $15,000. PW-2240, Engineering News-Record.

RESIDENT ENGINEER AND
DEPUTY RESIDENT ENGINEER

To supervise construction of $40,000,000 rockfill dam in the Middle East. Four-year completion schedule. Please send detailed experience and personal record. Specify salary expected and earliest date available.

HARZA ENGINEERING COMPANY
400 W. Madison St. Chicago 6, Ill.

POSITIONS WANTED

Mechanical Engineer—33, BSME 1949, married, registered. Six years broad experience in engineering, design and construction, mainly heating and power. Four years operating experience. Qualified for responsible position in above field. Organization must be expanding with opportunity for professional growth. Return from overseas contract in near future. PW-2311, Engineering News-Record.

Hydraulic Engineer 33, M.S.C.E. Reg. Calif. Diversified exper., desires challenging change. Min. salary, $10,000. West Coast location preferred. PW-2573, Engineering News-Record.

Accountant Senior, 49 years of age, employed, with extensive construction, tax and public experience, wants position with a progressive organization, Eastern Seaboard preferred. PW-2552, Engineering News-Record.

Architects Superintendent, many years experience, available soon. PW-2612, Engineering News-Record.

Distr. Factory Rep., 37, College Grad., 8 yrs. experience shovel, scraper, other heavy equip. Desire Western location. References and resume furnished. Reply PW-2574, Engineering News-Record.

Construction Executive—Grad. Eng. under 40, seeks a top position. Accustomed to assuming responsibility as head of heavy construction company (medium size work) and earning in excess of $25,000. PW-2610, Engineering News-Record.

Executive, 19 years administrative and supervisory experience in all phases of heavy construction, bid to completion. Manage project or business. Salary $15,000. PW-2611, Engineering News-Record.

Superintendent—Bridges, heavy foundations, sub-aqueous installations. Twenty-five years experience. To the construction organization confronted with the need of an experienced superintendent for the duration of a single project, your inquiry is solicited. Prefer to initiate job but will assume direction of going project, having successfully completed a number of projects started by others. A brief description of your project sent with your request for resume of experience, references and salary would be expeditious. PW-2562, Engineering News-Record.

Construction Supt. or Assit. available. PW-2563, Engineering News-Record.

Estimator—Civil Engineer age, 32. Experience includes job engineer, design, purchasing and supt. Available for responsible position in any location. PW-2589, Engineering News-Record.

Civil Engineer, 2-5 yrs. exp. pref. subdivision engrg. and surveying, to manage small consulting office suburban N.J. Excellent opportunity. PW-2591, Engineering News-Record.

Chief Estimator or Project Manager, 38 BS&PE, thoroughly experienced in industrial, commercial and monumental construction. Location immaterial. Presently employed at $10,000 plus bonus. Reply PW-2592, Engineering News- Record.

Construction Executive, sound experience all phases, bid to completion, buildings and heavy construction, available as project manager, chief estimator or similar position where scope and volume require top man. Now employed. Minimum $15,00. PW-2596, Engineering News-Record.

ENGINEERS DESIGNERS DRAFTSMEN

Permanent openings in our St. Louis and San Francisco offices for qualified personnel experienced in design of structural steel and reinforced concrete for work on

BRIDGES & BUILDINGS
HYDROELECTRIC PROJECTS
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Openings also available for mechanical and electrical designers and draftsmen for work on power plants, test facilities, large electrical installations and general industrial projects. Several recent graduate engineers will be added in all categories.

We desire men who want long range employment with ample opportunity for professional development and advancement. Excellent Employee Benefits & Retirement Plan, generous annual leave and sick leave, Blue Cross, paid holidays.

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Experienced structural steel detailers on all types of building and conveyor work. Long range program, good working conditions in a Consulting Engineers Office, paid holidays, vacation plan and health and accident insurance program.

Send complete information to:

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Field Engineer	$587
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ASSISTANT CHIEF ENGINEER

CE or Arch. experienced in structural steel, steel design, detailing, checking and estimating to understudy for chief engineer job with outstanding central Ohio firm, $8500. NO FEE. Submit detailed resume and photo to Personnel Associates, 83 South High Street, Columbus 15, Ohio.

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If you want
- HIGHEST EARNINGS
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- OPPORTUNITY TO ADVANCE
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Interesting, well-paying positions for

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Openings for:—

JUNIOR & SENIOR ENGINEERS

With Steel Plant or Construction experience to inspect construction of integrated steel plant in South America. Contracts & Profit Sharing.

Submit resume, expected salary.
All replies held in confidence.

P-2607, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

CONSTRUCTION EQUIPMENT SALES ENGINEER

Off highway haulage equipment department. Opportunity for sales engineer or construction man 30 to 35 years of age in established territory for AAA-1 construction distributor. *Give full details of background and experience in first letter to*

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offers you an immediate long-range engineering opportunity in

San Francisco
or
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CALIFORNIA

PLUS

Liberal relocation allowances for you and your family

IMMEDIATE OPENINGS:
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Engineers, Designers, and Draftsmen having qualifying experience in one or more of the above fields, please submit complete resume listing education, experience, salary history, present salary requirement, and availability date to:

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Confidential interview can also be obtained at: Scanlon Building, Houston, Texas, or Roosevelt Building, Los Angeles, Calif.

A leader in Industrial Design

BECHTEL
Engineers — Constructors

SUPERINTENDENT HEAVY CONSTRUCTION

Top level mature man wanted. Should have as a minimum, for the last 10 years, been continuously employed as superintendent on foundations, heavy concrete work, bridges, treatment plants, industrial construction and similar work. Permanent position, congenial working conditions and commensurate salary. Also need younger man with corresponding qualifications as assistant to our general superintendent.

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(Classified Advertising)

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85 pcs.	4" WF	15#	40'0"
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60 pcs.	12" WF	27#	60'/65'
75 pcs.	14" WF	30#	60'/65'
6 pcs.	27" WF	145#	14'0"
1 pc.	27" WF	145#	39'0"
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1 pc.	28" WF	140#	49'0"
2 pcs.	28" WF	165#	50'6"
1 pc.	30" WF	172#	16'8"
4 pcs.	33" WF	125#	29'11"
8 pcs.	33" WF	152#	25'3"
1 pc.	33" WF	200#	14'9"
1 pc.	33" WF	230#	42'1"
1 pc.	36" WF	160#	48'2"
2 pcs.	36" WF	260#	60'0"
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WAlnut 2-7070

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Capacities to 70 Tons
Booms to 140 ft. and 30 ft. jibs.
Special rates on long rentals

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All Located In East Hartford, Connecticut.

1—New 24" x 72" Roots-Connersville Blower—No Motor—This Unit Never Used;

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1—Diesel Drive Linn Tractor, Jumbo Platform for 16 Foot Tunnel, Side Platforms Hydraulicly operated;

3500 Lineal Feet 30" Naylor Vent Tubing;

6—4 Gun Kadco and 1—12 Gun Kadco Dust Collectors—Air Cooled Gas Motors Mounted on 4 Pneumatic Tire Trailers;

2—Eimco 104 Diesel Loaders.

THE SAVIN CONSTRUCTION CORPORATION
10 Village St. East Hartford, Connecticut.

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We own and offer
Subject to prior sale

2—80 ton WHITCOMB diesel electric, 650 HP, new 1944

2—45 ton PORTER diesel electric, 300 HP, new 1942

Full data and prices on request.
May be inspected in operation.

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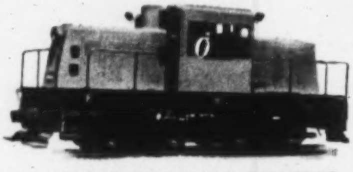

50 T. PORTER DIESEL ELECTRIC LOCOMOTIVE, new '41, ser. #7300 cl; 150 HP Cummins Engines (total 300 HP) used 1 yr; excellent condition $19,750

DIESEL ELECTRIC LOCOMOTIVES, & locomotive cranes, 25-45-50-65-80-105 tons.

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AMBURSEN DAM CO. INC
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PRACTICALLY NEW

310 PARSONS

$21,000.00

Worked only 500 hours.
Bought for a job that "blew up"
H&L removable teeth, Reinforced Boom—Conveyor extension—Diesel. You can't tell from new machine

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Learn latest methods to organize and run work. Prepare for the top jobs.

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CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

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Contract Disputes? Government construction contractors who have contract questions under dispute are offered assistance in the settlement or the appeal of said disputes. SS-2433 Engineering News Record.

WORK WANTED

Work Wanted: a group of Professors would like to undertake design and checking of buildings, highway bridges, etc. Preliminary drawings ready in 48 hours. WW-2346, Engineering News-Record.

BUSINESS OPPORTUNITY

Experienced Spanish contractor who has worked on U. S. airbases in Spain wants U. S. contractor to participate in joint ventures on such projects. BO-2583, Engineering News-Record.

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WILSON *Engineering Corp*

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4 Rex 4½ cu. yd. Adjusta-Wate Moto-Mixers
Excellent Condition—Illinois Area

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3 to 4—Low-Air Compressors, 1000-1500 CFM at 40 psi, with Motors, 440 Volt—3 Phase—60 Cycles

4—36" Gauge Storage Battery Locomotives and Extra Batteries

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Write for Details

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USED DIESEL ELEC.

LOCOMOTIVES

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Telephone: Beekman 3-7975

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Lima Model 802 Crane-Dragline

Model D-17000 Caterpillar Engine, Oversize cats, full accessories.

George A. Bass Construction Co.
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Rebuilt—A 1 Condition

48B Bucyrus Erie Shovel 2 cy Diesel
Northwest Model Shovel, 1½ cy
Comb. Caterpillar D8 & 80 Scraper
10 ton Buffalo Springfield Gas Roller
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Caterpillar D-6, 9-U Series, complete with pipe-laying side boom and hydraulic bulldozer..	$6,000.00
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FRANTZ EQUIPMENT COMPANY

50th & WYNNEFIELD AVENUE PHILADELPHIA 31, PENNA.
GReenwood 7-7200

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WIDE FLANGE BEAMS

8" WF @ 31#
8" WF @ 35#
10" WF @ 21#
10" WF @ 25#
10" WF @ 29#
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12" WF @ 27#
12" WF @ 31#
12" WF @ 36#
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12" WF @ 45#
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14" WF @ 30#
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14" WF @ 43#
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We also stock **CHANNELS, ANGLES, I-BEAMS**
We are also interested in purchasing your surplus material.

ALAN STEEL COMPANY, INC.
1241 Searles Road, Toledo 7, Ohio *Phone: FRanklin 1611*

ATTENTION
Paving Contractors

REX Mod. 34-E Single Drum Paver, powered by GM3-71 with auxiliary water pump, hydrocycle control, standard water storage tank and standard horizontal 35' distributor boom. Very good condition.

JOHNSON Mod. 219 Dutch Mill Bulk Cement Plant, 100-bbl. capacity, with Mod. 14 batcher, undertrack screw conveyor powered by 10 h.p. Sterling Gearhead electric motor and 1/3 h.p. Delco electric motor on the air compressor. Good condition.

BLAW-KNOX Three-Compartment Aggregate Bin, Mod. P-3100, 100-ton capacity, with Mod. 63B scales, 3 material-in-line scales, manually operated. Excellent condition.

All located in our yard at Davenport. Available for your inspection.

MARTIN-ROASA
Tractor & Equipment Co.
Davenport, Ia. Cedar Rapids, Ia. Hannibal, Mo.

FOR SALE or RENT

1—50 ton Full Revolving Electric Gantry Crane, 80% new, 440/60/3, available immediately.
1—60 ton Full Revolving Steam Crane for barge or gantry mounting.
1—955-A P&H Diesel Crane, with Fairlead, only 400 hours.
1—25 ton Steel Stiff Leg Derrick, 80' boom, with 3-drum Electric Hoist and Swinger.
50—Steel Pontoon Float Bridges, 5' x 5' x 7'.
1—No. 1 Vulcan Pile Hammer, reconditioned.
1—No. 5-S McKiernan-Terry Single Acting Pile Hammer, excellent condition.

WILLIAM P. SWIFT
P. O. Box 174 Springfield, Penna.
SWarthmore 6-8999

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WF-H BEAMS
PILE SECTIONS
NEW · USED · IN STOCK

8"	B P	36#	19/35'
10"	B P	42#	45/50'
12"	B P	53#	60/65'
14"	B P	73#	60/65'
14"	B P	89#	60/65'

We are also interested in purchasing your surplus material.

We assure you our prices will be the best obtainable.

Call **HY DRACHMAN**
STEEL CORPORATION
14-23 34th Ave., Astoria, N. Y.
Phones: AStoria 8-4484 8-8023

FOR SALE
Save On Good Used
WOOD ROADMIXERS

1—Model 42

2—Model 54

1—Cement Bulker for Cement Stabilization

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Armco Drainage & Metal Products, Inc. 45
Asphalt Institute 100, 101
Associated Steel Corp. 62
Atlantic Steel Corp. 86
Austin-Western Co. 31

Bakelite Div. U. C. C. 131
Bay City Shovels, Inc. 46
Belmont Iron Works 111
Bethlehem Steel Co. 55
Blaw Knox Equipt. Div., Blaw Knox Co. 110
Blood Brothers Machine Co. 84
Bruning Co., Inc., Charles 53
Butler Bin Co. 48
Bvers Co., A. M. ..... 2nd Cover

Caterpillar Tractor Co. 29
Chain Belt Co. 60
Clipper Mfg. Co. 127
Clow & Sons, James B. 68
Concrete Grinding Corp. 38
Construction Machinery Co. 106

Dicalite Div., Great Lakes Carbon Corp. 44
Dodge Div., Chrysler Corp. 72
Dorr Oliver, Inc. 88
Dresser Mfg. Div., Dresser Industries .. 87
Dudgeon, Inc., Richard 84

Eastman Kodak Co. 75
Euclid Div., G. M. C. 6, 7

Fate-Root-Heath Co. 122
Fenestra, Inc. 40, 41
Fennel Instrument Corp. of America 34
Flintkote Co., The 66
Fontaine Truck Equip. Co. 116

General Electric Co. 58, 59
General Motors Truck Div., General Motors Corp. 109
Goodall Rubber Co. 30
Goodyear Tire & Rubber Co. 18
Graphic Systems 123
Griffin Wellpoint Corp. 123
Gunite Concrete & Construction Co. 120

Hamilton Kent Mfg. Co. 141
Hazard Wire Rope Div., American Chain & Cable Co. 135

Inland Steel Prod. Co. 12
Insurance Co. of North America 102
International Harvester Co. (Trucks) ... 90

Jaeger Machine Co. 35
Jones & Laughlin Steel Corp. 93
Joy Mfg. Co. 99

Kern Instrument Co. 50
Klemp Metal Grating Corp. 103
Koch Erecting Co., Karl 77-80

LeRoi Co. 107
LeTourneau-Westinghouse Co. 63, 65, 67, 69
Lone Star Cement Corp. 20

Mack Trucks, Inc. 95
Macomber, Inc. 39
Mahon Co., R. C. 125
Manitowoc Engineering Works 57
Marion Power Shovel Co. 51
Massey-Harris-Ferguson Co. 10, 11
McGraw-Hill Book Co. 91
McKiernan-Terry Corp. 111
Mobile Office, Inc. 96
Moretrench Corp. 120
Mueller Co. 138
Murphy Diesel Co. 1

National Steel Corp. (Stran Steel Div.) Great Lakes Steel Co. 85
National Supply Co. 117
Noble Co. 15
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Pennsylvania Drilling Co. 84
Phoenix Bridge Co. 120
Pittsburgh-Des Moines Steel Co. 119
Pittsburgh Plate Glass Co. 137
Posey Iron Works, Inc. 124
Post Co., Frederick 54
Presstite-Keystone Engr. Prod. Co. 81

Raymond Concrete Pile Co. 129
Remington Arms Co., Inc. 73
Reynolds Metal Co., Inc. 121
Ric-Wil Inc. 105
Rockford Clutch Div., Borg-Warner 96
Roebling's Sons Corp., John A. 89
Ryerson & Sons, Inc., Jos. T. 16

St. Paul & Tacoma Lumbering Co. 136
Servicised Products Corp. 62
Smith Co., S. Morgan 74
Smith Engineering Works 9
Sonoco Products Co. 82, 83
Spencer, White & Prentis, Inc. 14
Standard Dry Wall Prod. 76
Symons Clamp & Mfg. Co. 2

Tapecoat Co. 56
Texas Co. 4, 5
Thurman Machine Co. 98
Timken Roller Bearing Co. ..... 4th Cover
Townsend Co. 8

U. S. Pipe & Foundry Co. ..... 3rd Cover
U. S. Rubber Co. 70, 71

Vibro-Plus Prod., Inc. 52
Vickers, Inc., Div. Sperry-Rand Corp. 32
Vulcan Iron Works 86

Warren-Knight Co. 88
Winpower Mfg. Co. 103
Wisconsin Motors Corp. 111
Wood Co., R. D. 114, 115

Professional Services 154

CLASSIFIED ADVERTISING
F. J. Eberle, Business Mgr.
Employment Opportunities 146-149
Educational 150
Proposals 142-145
Equipment (For Rent, Sales Wanted) 150-154

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Editorials

Structural Steel Capacity

The steel strike, fortunately now over, is bound to accentuate—and prolong—the shortage of structural steel, which has long been one of the construction industry's most troublesome problems. If by some chance, however, the resulting increased difficulties in keeping up with the demand for shapes should cause the producers to take a new look at their structural capacity, the strike could yet be credited with an unexpected dividend. For despite the attempts of the producers to justify the proportion of basic steel they allocate to structurals, the country's aggregate production of steel shapes continues seriously inadequate.

It is all very well for the steel producers to point to the 40% increase in the basic steel capacity of the country, which has occurred since the war. But only a small fraction of this new steel found its way into structurals for the construction industry. Demands in other directions—automobiles, canned foods, refrigerators and washing machines for example—have been given favored attention, ostensibly because sheet steel is a more profitable product than structural steel.

Such items, however, are merely the end product of prosperity and a growing economy. The products of construction—power plants, factories, housing, transportation facilities—are first required to make these end products possible.

Unless construction can go ahead, the whole economy is bound to suffer. It has been suffering for sometime due to a lack of structural steel, a fact which the producers of this vital product have failed to see—or at least failed to act upon. Whether their failure results from not allocating enough basic steel to their existing structural rolling mills or from having too little capacity in these mills cannot be pinned down with accuracy. In either event the result is the same—inadequate output of structural shapes.

The report in these pages last Spring (ENR March 15, 1956, p,21) concluded that the record demand for fabricated structural steel would prolong the shortage until sometime in 1957. The recent strike will add several times the month of its duration to that prophecy. That is not, of course, the direct fault of the steel producers, yet they would be in a much better position to cope with the aftermath of the strike if their normal output were larger.

The three-year, no-strike contract has been hailed as a victory for both management and labor. Certainly, on management's side, the relatively long-term stability will give it the best possible opportunity to think and plan—and build—for the future.

It is to be hoped that this thinking plus continued experience with the growing demand for structural steel, will bring about a new philosophy for this part of the steel business—either to give the construction industry a greater proportion of the steel produced than has been allocated to it heretofore, or to expand existing structural rolling capacity if that is necessary.

Jobs Back Home

A good many engineering graduates of the University of Maine who left their home state to seek their fortunes elsewhere would rather work in Maine, according to a recent survey. And while the homing instinct is not as pronounced in them as in salmon or carrier pigeons, they nevertheless would apparently come back to Maine in droves if engineering jobs like the ones they presently have were available there.

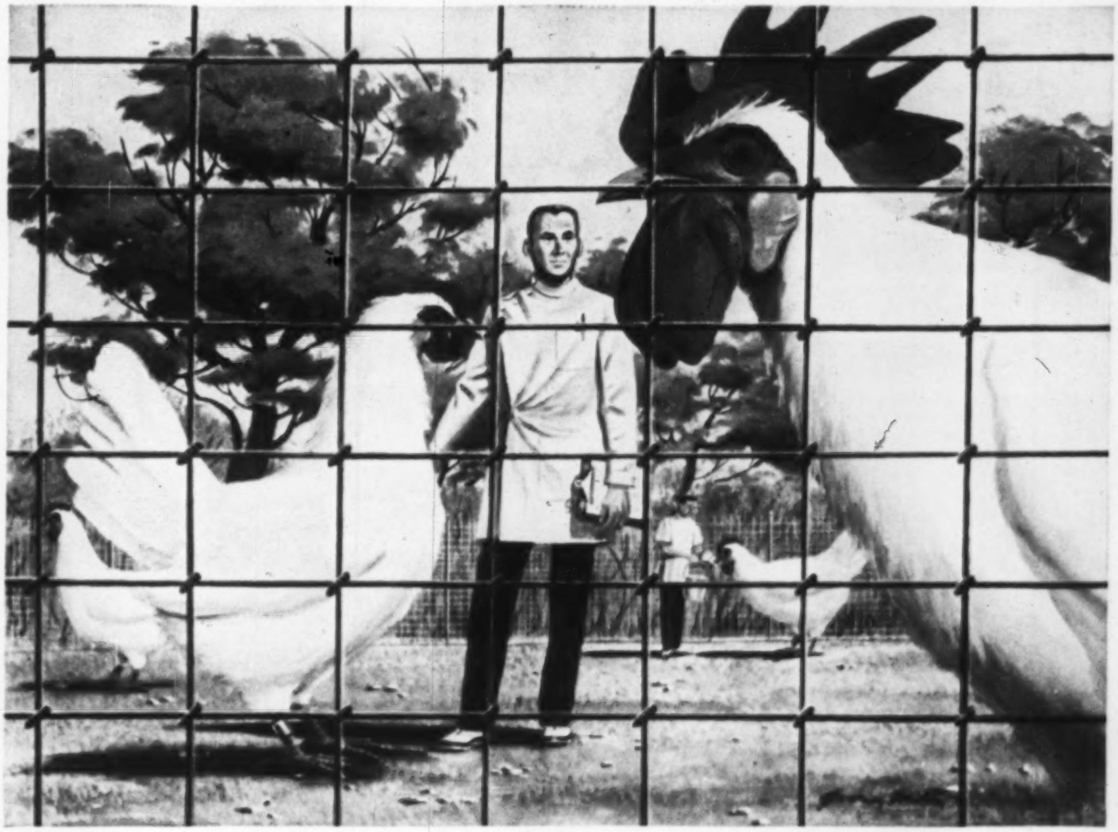
This rather remarkable fact was developed by the Maine Department of Development of Industry and Commerce, which found its task of attracting industry to the state stymied by a lack of engineering personnel. In a burst of genius, the department sent a questionnaire to 2,000 of the university's graduates asking if they would return home if jobs comparable to those they now held were available. Of the 800 who replied, 600 said they would like to return.

Apparently, mechanical engineers are the most homesick, because 215 of the affirmative replies were from them. A total of 133 electrical engineers and 129 chemicals would also rather work in Maine. Only 58 civils were homesick enough to admit it,—also no doubt feeling that they would no more than get settled until some far off construction job would put them on the move again.

In any event, Maine thinks it has hold of something important in this unearthed fact about the attraction of its land and climate for its native sons. Maybe it has, and we will yet see an industrialized Maine manned exclusively by repatriated Down Easterners. Flushed with the success of its first questionnaire, the state's development agency is now going to query the graduates of other Maine colleges.

The only disturbing thought in the matter is that the whole country may be populated by engineers who would rather be back home. Were each state to make an effective appeal for its "exiles" to return, the greatest migration in history might well result.

It is too early even to prophesy on Maine's success in providing the jobs that would bring its migrated engineers back. But it would not be unimportant to the construction industry if it does succeed, for industrialization fosters construction. Also, perhaps a greater number of civil engineers than the questionnaire figures revealed would leave their present jobs and return to Maine—even though they might take to the road again later.



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